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CHICAGO DAILY NEWS BUILDING FROM SOUTHEAST

Holabird & Root, Architects

LIVING ARCHITECTURE

A discussion of present day problems in a collection of essays written for and sponsored by the Chicago Chapter of the American Institute of Architects

edited by

ARTHUR WOLTERSDORF

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1930

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TO THE MEMORY OF

DANIEL HUDSON BURNHAM

father of The Chicago Plan

AND OF

CHARLES H. WACKER

President of The Chicago Plan Commission

WHOSE YEARS OF UNTIRING ZEAL AND EFFORT
WERE CROWNED WITH REALIZATION OF
MANY OF ITS ELEMENTS

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SENTINELS

BOULEVARD LINK BRIDGE, CHICAGO

SECOND PRIZE
CHICAGO TRIBUNE TOWER COMPETITION
Eliel Saarinen, Architect

INTRODUCTION

KING Solomon built a Temple that was the wonder of the age, so the Bible tells us. A German archaeologist's exhaustive studies of Bible records are shown in a model of this Temple exhibited in Jerusalem, and Harvey Wiley Corbett, architect of New York, has likewise delved in the records, producing drawings, models and speeches. These studies are meant to enlighten the modern world on the customs, habits, — shall we say the civilization — of Jerusalem at about 1000 B.C.

That is the permanent use of architecture, — to tell posterity how a people lived and worked and had its being. Man did such building before the days of King Solomon and has been doing it ever since. Fragments of the palaces of Nineveh and Khorsabad; Egyptian temples and tombs; Greek monuments, temples, theaters and stadia; Roman baths, palaces, amphitheaters and basilicas; East Indian stupas and topes; Maya pyramids and temples in Yucatan and Guatemala; Moslem mosques, tombs and palaces in the East, in Spain and North Africa; catacombs and little pre-Carlovingian Christian churches; Byzantine and Romanesque churches and cathedrals; Gothic fanes and collegiate buildings; business buildings and living quarters in port cities of northern Europe dominated by the Hanseatic

League; renaissance palaces and churches; palace gardens and city plans, — all tell their indisputable story of how man lived and why so.

Why does not the dwelling play a larger part in the enumeration? Because the overwhelming majority of dwelling houses were and are ephemeral and disappear after a limited period. Their story, however, is preserved in the painting and sculpture, the metal work and tapestry of the more monumental structures. So architecture is the story of civilization and of culture more than any other of man's works because of its permanence.

Pericles, wily politician that he was, had the Parthenon built to divert public attention and criticism from unsuccessful political measures. The Parthenon's perfection held the Athenians spellbound, and posterity in awe and admiration. And for posterity the Parthenon has pupped, litter after litter, to the present day.

The Medieval Church was, perhaps, the inspiration of one man; but the building of it was a community undertaking where lord and serf and burgher felt the same spark of interest as did the bishop or abbot and more lowly priest or fra. The result was vitality in the edifice. Like the sands of the desert, motifs copied from these fanes have been carried the world over, but never do the copies preserve the original spark of life. To be sincere each age must tell its story in stone and other material in the language of its day.

We Americans are proud of our architectural achievements in one branch of building at least, — the skyscraper of steel skeleton construction. And Chicagoans point with pride to the Home Insurance Building and the late Tacoma Building as the first born of this breed of cloud ticklers. But is the admiration for the skyscraper actually for

its architectural expression? Is it not rather for mechanical niceties introduced, for the electrical utilities, for a construction so high and yet so economical of usable space and withal so safe! As for the story told by its exterior, — well, architects are of many minds, minds ever changing. At the moment professional opinion is all for modern, and rightly so, if by modern is meant a sincere expression of the best thought of the day unbound by a knowledge of architecture of other countries and other times. But architecture is not shot into the sky as is the man from the cannon in the circus.

So the problem is to know the past and still be free to speak in a language that will hold the man in the street; that he will think and talk about architecture as his wife does about her favorite movie star.

To create great architecture a live and active public interest is essential. This public must be critical of the architect to stimulate him to produce structures it will treasure, will insist on preserving in the face of changing times and greed.

The American Institute of Architects through its chapters in all the larger cities of the land has set itself the problem as a duty of presenting to the reading public material of present day interest in architecture in the hope that the layman will feel the same concern in the orderly and beautiful growth of his city and country as did the Florentine in the building of Bruneleschi's dome on Santa Maria del Fiore.

The Chicago Chapter of the American Institute of Architects selected the men to write the articles that are presented in the pages of this book. Each man was chosen because of his qualification through study and practice in the field on which he writes. All the articles,

save "Tall Buildings of Today," appeared on consecutive Sundays in the pages of the Chicago Herald and Examiner in the fall and winter of 1929–1930.

Appreciation on the part of the architectural profession is here expressed to the writers and to the Chicago Herald and Examiner for their generous coöperation in presenting to the public material that should interest those to whom our cultural progress is a vital matter.

ARTHUR WOLTERSDORF, Chairman
Committee on Public Information
Chicago Chapter, A. I. A.

Chicago, April, 1930

I
TALL BUILDINGS OF TODAY

By John A. Holabird, A. I. A., and Henry J. B. Hoskins, A. R. I. B. A.

IT would appear to be a fact that tall building structures in their present form are considered to be the outstanding American contribution to the progress of architecture, and the basic factors of their existence are perhaps not difficult to discover. From the Tower of Babel, the mounds of Babylon, the Chinese pagoda, and the Medieval spires, we have evidence of man's constant desire and aspiration towards pinnacles of distinctive height, and these emotions still persist.

In this highly competitive age there is a compelling need for business locations equally advantageous with one's competitor which induces concentration of office accommodation, and with it a maximum building development almost in exact proportion to increasing land values.

In the Middle Ages, it will be remembered, various guilds of handicraft were segregated upon streets where the travel was horizontal and this now appears to be echoed in the modern skyscraper, in which the tenants are frequently engaged in a similarity of business where the travel is vertical.

Economical development in land values for the production of profit, aspiration for individual distinction of structure in matters of

height and advertising value, and the satisfaction of gregarious needs, produce the tall building whose ultimate height, given a firm foundation, it is impossible to foresee.

In the compelling interest that tall buildings create, it is perhaps not surprising that criticism of American architecture, at home and abroad, should be mainly concerned with the development of the skyscraper, and the supreme excellence of an enormous volume of work in other fields comparatively neglected.

The tall building owes the possibility of its erection entirely to the use of steel, a material permitting of concentrated and small units of structural support, which, combined with the use of comparatively thin enclosing walls, makes possible the use of some 80% of the interior of the building structure. This fact, as contrasted with earlier structures, where self-sustaining walls occupied so much space as to leave relatively little room for practical use, is what makes present tall structures economically possible.

The use of steel in the structural framework, particularly as affecting the exterior walls, introduces entirely new factors into the field of architectural design. For protection against rust and against distortion by fire, this steelwork is enclosed in concrete and buried out of sight and the outer expression of this hidden strength becomes one of the principal problems in design.

Its existence is suggested in the vertical lines of the façade; it becomes increasingly felt in the apparent ease with which set-back stories are supported, and in the general telescopic treatment of towers with their terminating roof features.

It is apparent that the present tall buildings cannot and should

PALMOLIVE BUILDING, CHICAGO

Holabird & Root, Architects

not be compared with buildings of other architectural periods, but should be judged entirely upon their own merits. The problems involved in the design of a skyscraper are more closely controlled by the practical considerations of structural materials than in most other forms of building. Structural columns are spaced in relation to the size of the office units, corridors, etc., required, and control to a large extent the plan formation. Heights are limited by zoning laws, elevators are provided in exact proportion to the requirements of travel, while stairs and other utilities are made to conform to city ordinances.

Financial considerations demand speed of erection, and this, combined with the repetition of office spaces, windows, and the like, of which the buildings are composed, calls for a standardization in the structural units. In this manner the limitations affecting the architectural design are clearly defined and are such as to present inviting opportunity for the use of new forms of architectural expression.

The urge for new forms in art and architecture evidenced by the "Neue Gestaltung" of Germany, the later "Art Nouveau" of France, and the "Moderne" of present day America, is finding a very appropriate outlet in the design of tall buildings. Based on proportion and with an absence of sentiment, skyscrapers are now built to fulfill their purpose and use, to express the working conditions and ideals of the modern business world, and to do so in a conclusively beautiful manner.

When the Chicago Daily Tribune held an open competition for the purpose of satisfying its ambition to erect the finest office building in the world, the result was an astounding display of interest by archi-

tects the world over. Some two hundred and sixty designs were submitted by twenty-four different countries, offering every conceivable solution of the problem.

From this great effort, which resulted in the erection of one of the world's greatest and best known office buildings, a tremendous influence was exerted in the direction of a logical solution for skyscraper design. It appeared that a new impetus was given to the desire to eliminate or at least to properly adapt past architectural styles; to eliminate cornices and all unnecessary excrescences; and to present a frank expression of structure by means of the peculiar and inherent characteristics of materials.

Architecture, expressed through available materials, will change as new materials and technical processes are evolved, and as city building ordinances are adjusted to meet changing conditions.

The use of metal and glass for the enclosing walls may tend to replace stone, terra cotta or brick until such time as new materials may eliminate them in turn.

From the limitations imposed by skyscraper requirements, and with the materials of construction available, the architect endeavors to solve his problem: —

1. To adjust the economic balance between building volume and its cost.

2. To determine upon the plan, the mass and its component parts, based entirely upon organized necessities.

3. To mold its form within the limitations of zoning requirements and the need for stability, both actual and apparent.

4. To discover the rhythm of its masses and voids, the geo-

metric relationship of its parts, and to disclose the beauty of abstract form by the application of the laws of proportion.

5. To restrain ornament within the inherent qualities of the materials used and their practical application.

6. To avoid as far as possible the powerful influence of custom and tradition in design, insofar as they do not apply to the problem, and to build a structure the design of which is its own explanation.

In spite of a similarity of requirements, namely, of providing office and sometimes dwelling accommodations, these new structures possess great individual distinctiveness. They have an abstract quality of design open to a personal interpretation in proportion to the understanding and discernment of the observer. Viewed from this attitude the Tribune Tower aspires in splendid unity and without doubt achieves the purpose of its owners.

Above all, the newer buildings express stability of structure almost regardless of the exterior material. And any misunderstanding as to the truthfulness of their facings, in contra-distinction to the inherent structural expression of Medieval buildings, is lessened by the constant striving to use material in the frankest and most truthful manner, while ever mindful of the need for protection from the elements.

Our viewpoint towards exterior materials will undoubtedly change. Granite, for instance, is still largely used as a base, not at this time for the suggestion of its load bearing qualities, so much as for the durability and cleanliness of its surface. In the mind of the intelligent observer, the use of stone in large slabs for exterior walls does not imitate wall bearing construction. Metal and glass as en-

CHICAGO MOTOR CLUB BUILDING, LOBBY
Holabird & Root, Architects

closing material is not as truthful as it may appear to be with the metal parts backed by masonry for the retarding of fire and protection from heat and cold.

Comparatively speaking, skyscrapers have been with us but a very short time, and in their growing pains have naturally passed through many varied forms of expression. That they will persist and be perfected can be taken for granted.

It is increasingly apparent, however, that the congestion of tall buildings where erected to the maximum permitted height in key locations, such as Manhattan Island and the Chicago loop, tends to uniformity and loss of distinction, even of the towers surmounting the base structures. This leads to the demand for higher structures, and this in turn, under the present zoning requirements, for larger base areas upon which to build them. The future of tall buildings would appear to lie in this direction.

The acceleration of modern transportation may possibly affect them; but while the airplane, dirigible and other forms of rapid transit may scatter residential communities and manufacturing centers, the same rapid transit will be the means of conveying crowds toward the large commercial centers. At these focal points, it may be that amalgamation of interests will produce pyramids of enormous size and height with set-backs forming terraced streets and gardens; auditoriums, theaters, natatoriums and garages;— the whole gamut of civilized mechanics at its service.

Perfect mechanical equipment will provide uniform and healthful atmospheric conditions at all times and seasons. Artificial sunlight will obviate the need for windows except as a means through

CARBIDE AND CARBON BUILDING, CHICAGO

The tall green and gold building in the middle distance.
Burnham Bros. Inc., Architects

which to observe the outer world, and its interior will be made audibly comfortable by the control of sound and the elimination of unnecessary noise.

Between these mounds will be open spaces considerably wider than our present streets which in a smokeless era will be landscaped and developed in a manner to provide the city dweller with an environment suggestive of the countryside.

II
ON PLANETARIA

By Ernest A. Grunsfeld, Jr., A. I. A.

THERE is probably no one as unfamiliar with the appearance of the night sky and its changes as the average city dweller. While the soot of the city, the high buildings and the glare of artificial lighting obscure the heavens, his self-consciousness prevents him from standing in the middle of the sidewalk to star gaze. Even the schools, possibly because of this lack of opportunity for observation, offer very little instruction which might give the city dweller knowledge of the changing appearance of the firmament or of the physical causes of these changes.

Perhaps with the incentive of compensating for this deficiency, a machine, the kernel of the planetarium building, has been developed in the Zeiss laboratories in Jena, Germany. More than twelve of these sky museums have been built in the larger cities in Germany: in Düsseldorf, Berlin, Stuttgart and Munich, for example. In Italy, a planetarium chamber has been constructed inside one of the ancient Roman baths; Vienna has one, and machines are being made for Moscow and London. And now, this year, Chicago has its planetarium, the first in America.

The planetarium chamber is a large, round room, eighty feet in diameter, with a domed ceiling entirely covered with linen, the

domical portion commencing nine feet above the floor. On the walls, just below the linen ceiling, there is the silhouette of a city, generally from some vantage point in the city in which the particular building is located. In the center of the room stands the machine, looking very much like a huge dumb-bell mounted on a miniature gun carriage. In reality, it is a highly intricate and sensitively adjusted form of the magic lantern or stereopticon. The knobs of the " dumb-bell " are studded with lenses. There are images of stars on slides behind the lenses and powerful electric lamps within each knob. The " gun-carriage " encloses a special set of motors which move this magic lantern in any direction. Thus the lenses project moving images of stars on the dome above. The lights can be turned on or off or combined in any manner and the intensity of the light can be adjusted so that every astronomical phenomenon can be illustrated.

The lecturer who demonstrates to the audience in the planetarium, can, by manipulating switches, make the machine perform in such a way that the image thrown by the lantern will produce the exact appearance of the sky, not alone at any day or hour of the year, but in almost any year from the beginning to the end of time. More than this, the machine is so adjusted that the apparent movements of the cosmos around us can be accelerated to such a degree that in the course of an evening one can live through thousands of years of sky history; or the machine can turn prophet and show how the sky will appear in a thousand years.

Again, one can examine astronomical phenomena from any point on the earth's surface. One can see, for example, just how the sky looked to Rameses from Karnak, how it appeared to Napoleon on the

ADLER PLANETARIUM, CHICAGO
Ernest A. Grunsfeld, Jr., Architect

eve of his defeat at Waterloo, to Columbus in 1492 or to Lindbergh in 1927, or how it looks from the North Pole at the precise instant that one is in the planetarium chamber. The illustrative functions of the machine are, in fact, almost infinite. It can, in a few minutes, show the change that will take place in the sky in 26,000 years (a period known as the Great Year) when the axis of the earth will have shifted so that in 10,000 years Vega, instead of Polarus, will be the North Star. The complexity of a machine that can throw lanternslide images of over nine thousand stars, each in its proper size and brilliance, on the miniature sky is not readily conceivable.

These experiences, of course, are instructive, but the perfect illusion of a night sky in the planetarium chamber makes it thrilling as well. The lights in this room are gradually turned down, and the naked, white vault is transformed to a clear, deep blue, nocturnal sky. The dome becomes a screen on which the streams of light from the magic lantern make an illusion of a firmament of twinkling stars. The spectator imagines himself standing in an open field on a clear summer night with his eyesight so sharpened that he can see every star more clearly than he could even if the real physical conditions were perfect. This probably accounts for the great popular interest in astronomy which has arisen in Germany since the installation of the planetarium machine.

The construction of a planetarium, is, in itself, an intricate problem. There is, first, the erection of a perfectly spherical dome with the attendant problems of artificial ventilation for so large a room. Secondly, there is the unique problem of the interior linen dome which must solve both the acoustical and optical difficulties inherent in the

purpose and shape of the planetarium chamber. Thus, the linen dome must serve two equally important functions. It must be sufficiently porous so that the sound will pass through it to devices that will diffuse it, and it must be sufficiently taut so that the rays of light will project accurate images. Lastly, the machine, being movable, is locked into the precise center of this artificial universe by elaborate devices, and mounted along the earth's axis. There are, of course, a great many complicated electrical connections not necessary to other types of buildings.

It is an old axiom of architectural theory that the appearance of a building must reflect its function and the structural elements defined by that function. Various types of buildings adhere to Ruskin's " Tenet " in various degrees. Perhaps none does so as completely or as obviously as a well designed planetarium. By its very nature, the problem of such a building requires a new form — merely that of a dome with an entrance — so that a planetarium in its simplest terms would look like a huge beehive with its opening. In fact, some European buildings have been constructed with only a lobby and the domed planetarium chamber. In Düsseldorf, however, the building is used for the general purposes of an auditorium as well as for the planetarium itself and by reason of the compromise necessary to adapt the building to two separate functions, it has suffered in efficiency, if not in design.

The Adler Planetarium in Chicago is more monumental than any of the European structures. It is a twelve-sided building, 160 feet in diameter, rising in three tiers — each one a step back — so that the topmost tier is about one-half of the size of the lowest. The lower

portions, built of a dark Minnesota granite, are surmounted by a great copper dome, rising eighty feet above the ground. There are a terrace, exhibition halls for the display of astronomical instruments and photographs, a lecture room and a research library, as well as the planetarium chamber.

It is a perfectly symmetrical building and severely simple. It is modern in spirit, without formal ornamentation except for bronze tablets depicting the signs of the zodiac at the twelve rounded corners, which are reeded. The attempt has been made to characterize the mathematical precision of the universe, concentrating on the massing of the various forms into a strong and graceful whole rather than emphasizing elaborate symbolism.

In the interiors, the exhibits are highly polished and metallic, and consist, in addition to the instruments, of large photographic transparencies of interesting portions in the sky, so mounted in the walls that carefully diffused lighting from behind gives them brilliance and an illusion of reality. The interior design is keyed around these exhibits so that the mechanical functions of the building are reflected in design. To this end much use is made of metal mouldings and simple surfaces, while operations formed by light rays furnish the illumination.

III
THE PLANNING AND ARCHITECTURE OF PUBLIC AQUARIA

By Edwin H. Clark, A. I. A.

THE special point of interest in an aquarium lies in the fact that in no other way can a fish be seen leading his ordinary daily life. The most commonplace fish is in a constant state of agitation about something. Almost every move he makes is surprising and so entirely different from anything with which the spectator is familiar that the aquarium is one of the most popular public exhibitions.

The first consideration in designing an aquarium is the number and kind of fishes to provide for. The capacity of our largest seacoast aquaria is about sixty tanks, for both salt and fresh water specimens.

As the most interesting sea fish are usually found off the Florida coast, it would be necessary, if sea fish were shown in Chicago, to ship them several hundred miles in heavy tanks of sea water; all of these tanks being arranged with circulating water or compressed air to keep the fish from smothering.

The express charges on the fish, water and tanks would be appalling. The crowding, bumping and handling would probably kill half of the fish before they arrived in Chicago.

Thousands of gallons of sea water would have to be brought from the ocean every year because it is impracticable to make it artificially. Therefore, unless ample funds are available for the expense of shipping and caring for sea fish, it would seem best to provide for the finest possible collection of fresh water fish only and to exhibit especially our great game fish, the muskellonge, black bass, trout, et cetera.

In addition to the larger fish, the eels, the turtles, and the numerous varieties of tropical fish make a very interesting exhibition. They are of every conceivable color, shape, and size, with grotesque eyes, mouths and feathery fins. Their only common taste seems to be a passion for fleas, which are their favorite food and must be supplied regularly. All of these tropicals have their own ideas regarding family life; some building nests, some even bearing their young alive.

The design of the exhibition tanks and equipment is, of course, of greatest importance. In order that the collection may be seen to advantage, the bottoms of the tanks should be three feet above the floor level and the tops seven feet. In size they should vary from eight feet square to three feet by five feet and the depth of water should be four feet. All tanks should have plate glass fronts 1½" thick. The tanks must be lighted directly by continuous skylights and also by electricity in order that the building may be opened in the evenings if desired. The interiors are treated with rockwork and aquatic plants making a series of beautiful and brilliant pictures.

Behind the tanks and extending to the outer walls, a space at least eight feet wide must be provided for operation and care of the tanks and for sixteen extra tanks each 2x6 feet by 4 feet deep used for hospital purposes and for extra stock.

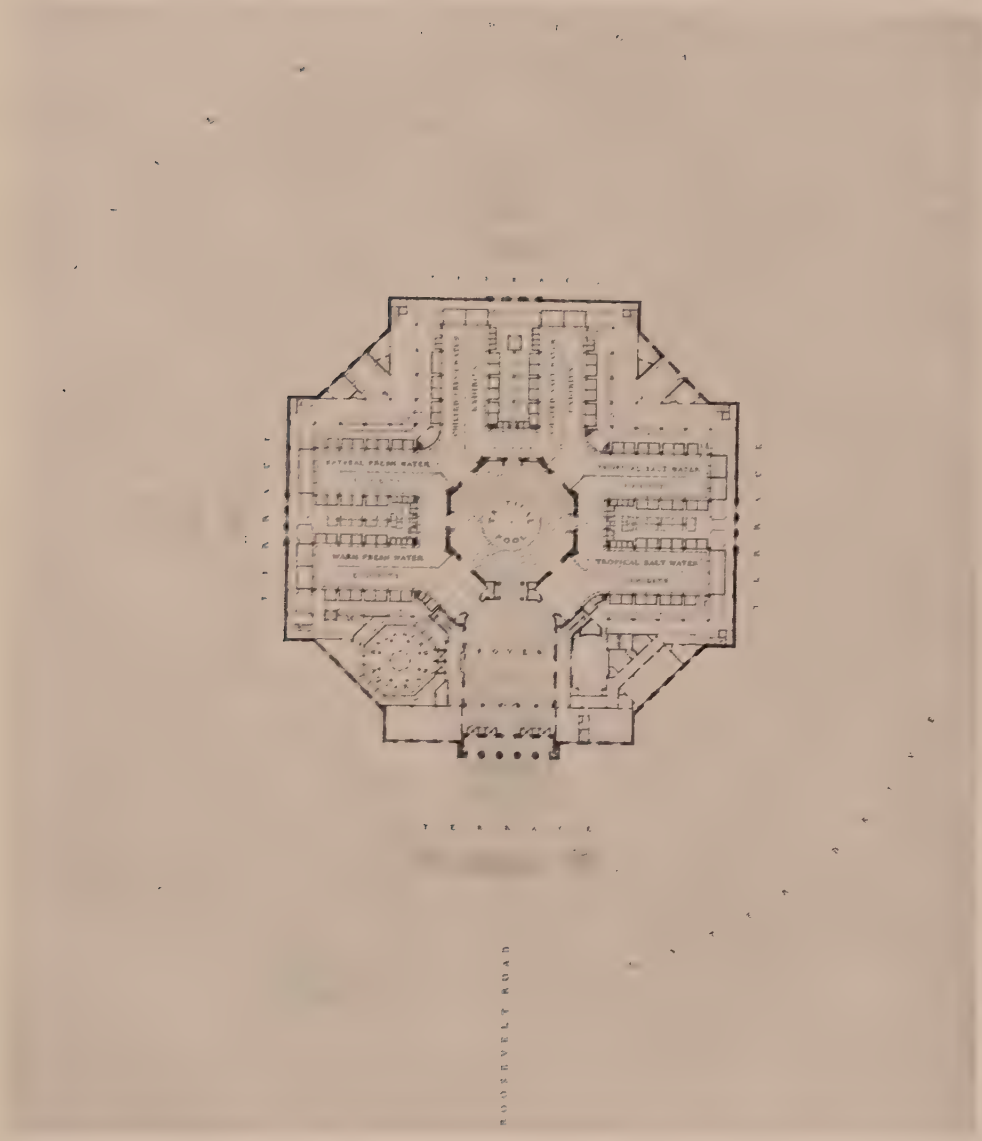
JOHN G. SHEDD AQUARIUM, CHICAGO
Graham, Anderson, Probst & White, Architects

When different kinds of fish are placed in the same tank, they live peacefully together if they have enough sea room to keep out of each other's way, therefore, tanks should be unusually deep from front to back. In one of the older aquariums where the tanks were shallow, many of the fish were minus one or both eyes and usually a fin or a tail because the peace lovers could not run away from the fighters.

To maintain the proper temperature and proper degree of purity of the water in the various tanks and hatchery, it is necessary to continuously recirculate the water through filters and then either through a heater or a cooling tank. In recirculation the water is drawn out of the tanks and collected in return pipes to two surge tanks, then pumped by means of centrifugal pumps at the rate of about 400 gallons per minute through sand filters and then through heaters or coolers and back to the fish tanks. A duplicate system of piping is required so as to provide both warm and cool water, warm water for tropical fish and cool water for trout and other cold water fish. In an aquarium having both salt and fresh water tanks, two entirely separate systems must be installed.

To provide the cooling medium a refrigerating plant is required so as to insure continuous cooling effect. The water is cooled by means of direct expansion coils in a cooling tank, and a temperature of 40 to 50 degrees Fahrenheit is maintained at all times in such tanks as require cool water. In tanks requiring warm water a temperature of from 65 to 80 degrees is maintained.

To supply the oxygen content necessary for the water in the tanks an air compressor and air tank are required and air at 25 pound pressure is piped to all tanks, terminating in the bottom of tanks with



GROUND PLAN, JOHN G. SHEDD AQUARIUM, CHICAGO
Graham, Anderson, Probst & White, Architects

a special basswood nozzle through which the air blows and rises to the surface in bubbles in spray fashion. The amount of air or aeration is regulated in each tank as is required.

Gravity tanks should be provided in the attic space. These would permit carrying on for a short period in case of pump shut down. Pumps, however, are provided in duplicate as are also the surge tanks and filters. The heating and cooling should be thermostatically controlled so as to automatically maintain even temperatures.

The lower story of the Lincoln Park Aquarium contains one of the most complete fish hatcheries in America. Its equipment consists of batteries of hatching jars for the still water fish and troughs and trays for the trout and other game fish.

This hatchery is in operation about two months in the spring and three in the fall and has a capacity of about fifty millions of eggs.

My trips to the State Hatcheries and the Bureau of Fisheries in Washington for the purpose of learning the secrets of artificial motherhood were most interesting. The Bureau has not only helped us in designing the hatchery but supplies us with nearly twenty million eggs a year, — white fish, salmon, trout and wall eyed pike.

In the spawning season the white fish, for example, lays several thousand eggs. Other fish, such as perch and rock bass which are not busy raising their own families at that particular time, head for the spawning beds and eat all the eggs which the white fish cannot protect. Many eggs are also scattered and lost by storms and as a result of these catastrophies, only a small percentage of the eggs laid become fish. The fishery experts have found that these fish can be caught in

nets before spawning, the eggs taken from the fish without killing them and the fish put back into the lake.

The hatchery trays and jars are designed to keep the eggs agitated and in running water, as nearly as possible like natural conditions and almost 90% of the eggs collected are hatched.

The newly hatched fish takes the yolk of his egg with him, and feeds upon it for about six weeks. He is immediately planted in the river or lake and has this six weeks' supply of food to last him until he gets accustomed to his surroundings and learns to shift for himself.

The success of an aquarium depends upon the reliability of its equipment. The temperature of the seas and rivers and lakes is much more equable than that of the air or the ground. Aquatic creatures are adapted to this monotony of surrounding conditions and are easily killed or injured by sudden rises and falls in temperature, or by unusual water conditions. Therefore, it is necessary to insure continual operation, usually by duplication of equipment, otherwise an accident to the machinery may mean a loss of the entire collection.

The new Shedd Aquarium with a generous building fund and ample endowment is now completed in Grant Park. Special cars have been designed for the transportation of sea fish and ample funds are available to study methods for overcoming the disadvantages of an inland location. The results are awaited with much interest and it is expected that this aquarium will eventually contain a variety of specimens which will rival those in the great aquaria of New York, London and Naples.

LEAGUE BUILDING, UNIVERSITY OF MICHIGAN, ANN ARBOR
Pond & Pond, Martin & Lloyd, Architects

IV
CENTERS OF COLLEGE LIFE

By Irving K. Pond, F. A. I. A.

UP to and well into the present century the college contented itself with ministering meagerly in its physical equipment to the development of the three-fold nature of the student, as an individual, in the functioning of the mind, spirit and body. The body came last in any ordered system of education and it was only in the declining years of the last century that the gymnasium elbowed its way to a position among the other buildings of the campus, and then only in a few instances to an equal position. This new factor, represented by what the gymnasium was supposed to stand for, was rarely, if ever, given any important standing in the curriculum or considered as having a bearing on the cultural side of college life; certainly not as bearing upon the matter of communal culture. It even may be questioned if in the college there dwelt any particular notion of the necessity or desirability for communal culture — the notion that the individual was to be developed and refined for other than his selfish and personal satisfaction. The college man was to be given an equipment which would permit him, if so minded, to live against a background of culture. Thus, up to the time of the appearance of the gymnasium upon the campus the buildings, other than the dormitories, in which some social phase of life must necessarily exist,

housed only the moderate machinery of mental culture — the class rooms, the scantily equipped laboratory, and the sometimes well filled library shelves. The buildings were dominated by the chapel at which attendance was generally compulsory. If students had not been compelled to attend any chapel exercises, but had found under the vaulted roofs some genial form of social outlet, the chapel might have ministered to the communal life; and in the voluntary gathering of the student community a fine large social spirit might have been engendered and the spiritual life of the student body might have been enlarged. Chapel failed and the gymnasium came with its physical concomitant to recreate and foster the college spirit. The gymnasium is not yet, though it might well come to be, a mighty factor in the development of the aesthetic and cultural side of college life as it now in a measure is on the ethically sportsmanlike side.

But the college has grown perforce with the growing time and has taken on an aspect more in accordance therewith. The chapel today is but a more or less theatrically conceived and executed show place remote from the real life of the college or from the grouping of colleges which is called the University. The college, as it was, no longer exists to create for the individual a background for life. The college exists anew as a factor in a University which shall prepare great masses of men, of individuals, to make a present and a future living. The amenities are not considered in the curricula. But life must have its amenities — and human beings must have their social contacts — in college and in the great world outside; and a new spirit has entered into the organism and a new building has elbowed its way into the group already upon the campus and in bulk it challenges

the chapel and the academic building, and in deeper meaning and influence it outstrips them both.

The building which houses this new life and gives material expression to this new spirit is called in many instances and is generally coming to be known as the college, or the university, Union. This is the name applied to it in male and in co-educational institutions, when used by the male students only or by the male and female students in common. Where the building is to house the extra-campus activities of the women in the women's colleges or to minister particularly to the women of co-educational institutions, as at the University of Michigan, the tendency is to name the structure and the underlying organization the League (as we are getting the " League " of women's clubs, the " League " of women voters, etc.). In general in the co-educational college there is but one building of this nature and that used in common by the men and women; though at the University of Michigan men and women have each their own building used for their own individual purposes and receiving the opposite sex only as guests.

Now, what, specifically, is the idea embodied in the League and Union organizations which these dominant campus buildings house. Primarily, they are schools and laboratories for the unearthing and development of leaders; for the development through social contacts of that spirit of coöperation and sportsmanship which makes one a factor in college life and which, carried into the activities of the outside business and social world, gives one the power of initiative and capacity for achievement. In the buildings upon the campus devoted to scholastic pursuits knowledge is gained; at least the idea therein is to impart knowledge. Facts are made known, theories ex-

pounded, synthetic powers awakened. In all this knowledge comes; but experience shows that wisdom lingers. To the outsider it has seemed that the college man "knows it all" but that he lacks wisdom. Wisdom comes only with experience. The college Union is intended to furnish a well tilled and richly fertilized field for the sowing of the seeds of experience; for the reaping of the harvest of wisdom. In the Union center the extra-campus activities. Herein are housed the organizations which minister to the larger college life. The musical societies, the honor societies, the athletic societies; committee rooms and private dining rooms are available for all sorts of functions from purely social to broadly educational, even to deeply religious. The college Union fulfills all the requirements of a well planned and thoroughly equipped club and something much more besides. It ministers to all phases of student life; to returning and resident alumni life and to the community life which finds itself in sympathetic accord with college life and ideals. Therefore the college Union must exhale the college atmosphere and reflect the college spirit. The Union, to serve its purpose, cannot be designed and built in the conventional style of the urban or the suburban club house, but must reflect the mood and temper of the college whose campus it adorns. This reflection of mood and temper must not be mere reflection; it must be creative of mood and temper leading into higher channels the life which pulsates within its walls and sends its influence beyond. Therefore the Union should not be merely or predominantly academic in its design, but should reflect the modern tendencies of life just as the college, or the University itself, is reflecting more and more the age to which it ministers. The architecture of the Union building should

influence the architectural development of the campus rather than vice versa and this without conflict with the idea that the Union should reflect the personality of the college. The alumni body, which has had experience of the world at large, must bring its influence to the design of the Union and through it to the design and character of the campus buildings. The college architect will not create innovations; in general he will conform to standards and follow tradition. The movement of life outside, best fostered by the alumni, must be made to influence him. In fact, it is the people who create architecture in the large essentials, overcoming in many or most instances the inertia of the architect in order to do it. Few indeed are the architects who grasp the situation in its entirety or even more than partially. When the main solution has been grasped, the architect too frequently is at a loss as to how to develop it aesthetically. So he contents himself with the application of the old gothic, or renaissance, or romanesque ornament; or worse yet, as they are in no wise a part of his background, he uses Indian, or Mayan or Aztec motives seeming to himself to be freshening or modernizing his product. None of this stuff has any place in the college Union building.

In discussing Union buildings, however, one must more than generalize and sentimentalize. One must particularize if the functions of the Union are to be made clear to those who have had no experience of them or who may wish to make practical application in a specific case. Frequently, perhaps generally, the college has a swimming pool in its gymnasium equipment. Even so, it is well, if possible, to include a swimming pool in the equipment of the Union building. This means the necessary accompaniment, shower and locker rooms. Alumni and

guests make use of this feature, whereas it may not be convenient or practicable for them to use the college pool. The Union pool at Michigan is thirty by seventy-five feet in horizontal dimensions and is located in a sunlit and well ventilated room and furnished with a visitors' gallery which is accessible from a main floor corridor.

When one has bathed one must eat. One must eat whether or no. Therefore, a prime necessity is the kitchen with all its accessories of food storage, food preparation, refrigeration and service. From the main kitchen the cafeteria, a most popular and lucrative feature, is served; also the main dining rooms. The private dining rooms require one or more separate serving rooms, while the banquet hall must be separately and individually served. The relative sizes and locations of dining rooms and cafeteria will depend upon the nature of the patronage. The banquets may be held in the assembly and adjoining rooms which serve also to accommodate the Union dances, concerts, and general gatherings. The acoustics of this room should be a matter of concern. It, with its retiring rooms, should be easily accessible from the building and should be reached readily by outsiders who have not the privileges of the Union. This also should be the case with the theater where one is incorporated in the building plan. Ample lobbies and concourses for meeting and intercourse of the student body go without saying. Here also, students, faculty and alumni meet on common ground and from the lobbies they disperse to the individual dining and committee rooms. An ample billiard room should be provided for male students and card rooms and music rooms for the women. Lounges should be provided for each of the sexes in the co-educational Union, with a barber shop for the men and a beauty

parlor for the women. There should be quiet rooms for reading and conversation and sequestered rooms for noise and " rough house." Student " help " and professional help should be provided for separately. Many students work their way through college by helping in the Union. Bedrooms form a desirable and necessary part of the Union equipment. These are used generally only by transient members and guests, though in some colleges they are let out as dormitory rooms for the season to upper classmen or faculty members. The policy of the particular college must determine questions of this nature. But the Union, which above all is a democratic institution, its whole communal value depending upon the strict maintenance of this essential characteristic, must not play or seem to play favorites or give one class of members advantages which it cannot supply to all. In the American college democracy of mood and temper and atmosphere and bearing as touching all the necessities and subtleties of life must be maintained and be made paramount. Union in its essence is this equality and no more so than in the American college Union which fits men and women for service and leadership and the great democracy of American life.

THE SKOKIE SCHOOL, WINNETKA, ILL.
Hamilton, Fellows & Nedved, Architects

V
WHEN SCHOOL ARCHITECTURE IS DISTINGUISHED

By John L. Hamilton, A. I. A.

EDUCATION is today, of all public undertakings in America, the closest to the hearts of the people. Religion, law and militarism have all had periods of ascendency which have left their architectural monuments and while these forces still have their influence, it is to education that we, as a free and democratic people, are giving our fullest expression.

Religion, which has always been the inspiration of the fine arts, is also the mother of education. Education, however, has outgrown her religious youth and while our church institutions still maintain great educational enterprises, the universal demand for education has far outstripped the capacities of denominational institutions of learning.

And now we have, firmly established, the great public school system maintained for all the people regardless of race, creed or wealth. Built on a huge scale, it is generously maintained by public taxation, except in a few conspicuous instances where private philanthropy has become interested.

Marvelous as this development has been, and granting that education of a kind is now available for most every child in America, we must realize that the successes thus far attained are quantitative

rather than qualitative and that much has yet to be done to elevate and refine our standards if we are to equal those of the smaller but more selective educational systems of the old world.

No element is more important in this process of refinement than the influence of inspiring architecture. It is not sufficient that our school buildings be fireproof, well lighted and ventilated, and standardized models of neatness and efficiency. Each one should have a noble character of its own, truly expressive of its purposes and ideals.

The schools for the very young should strongly reflect the home, should possess a distinctly domestic charm and should be of residential scale which is possible of attainment even in buildings of comparatively large size. Schools for older children may be of more imposing character, but monumental effects should be avoided, except in the dominant massing of very large buildings or groups.

It is not essential that our school buildings be designed in any historic style or period but rather they should be evolved from a careful study of function, surroundings, local materials and charming composition.

We could not, even if we wished, discard our architectural heritage. It is as much a part of us as our language and it can only be revised and adapted to our changing world by a gradual process of evolution.

The last decade has witnessed an unprecedented volume of school building throughout the country involving an annual expenditure of hundreds of millions. A result of this situation has been an enhanced opportunity for idealistic expression in school architecture, which opportunity has been fully realized in conspicuous instances.

Another result has been a fuller realization on the part of commercial interests that the largely increased volume of school construction opened a great field hitherto not fully exploited for the sale of building materials and appliances.

This has created a sales pressure which, directed through public propaganda, through unwholesome political activities, and toward public school trustees, officials and architects, has in many instances been so dominant that mature study of each individual project and disinterested thought in architectural design, and in the selection of materials, has frequently been made impossible. The building of a new school thus may become a mere industrial project and the possibilities of high artistic achievement become entirely lost.

A public building constructed under our democratic system of administration is necessarily the result of the action of many minds beside that of the architect to whom its design is accredited. Whether those minds meet in harmonious idealism or a compromise of discordant self-seeking, the resultant building will almost certainly reflect the attitude of its creators.

School architecture can only hope to achieve lasting distinction when it expresses the highest thought and noblest purpose of its originators, as well as the skill of the architect.

Such buildings as Nassau Hall at Princeton University and the buildings composing the original group of the University of Virginia by Thomas Jefferson may be mentioned as among the comparatively few educational buildings of the early American period which were fine enough in character and substantial enough in construction to hold the respect of succeeding generations and thus be preserved from

early destruction which is the inevitable fate of every unworthy building however monstrous and costly it may be.

As a result of the great waste occasioned by the construction of unsafe or unsuitable school buildings, various statutory building codes have undertaken to so define and prescribe what are commonly regarded as the essentials of school buildings, as to establish minimum standards affecting safety, health and utility.

These codes have served a valuable purpose as guides and restraints to those unfamiliar with the technique of school design, but because of their inelasticity they often are misapplied and unduly restrictive.

No attempt has been made to enact legislation designed to promote higher artistic standards and it is doubtful if such legislation would be feasible or progressive.

Our only means, therefore, of influencing the artistic character of future school buildings is by the general elevation of public taste and the place to begin is with the youth who is now going to school. Does he regard his school as a place of beauty and inspiration within his comprehension or as a strange and formidable pile calculated to crush his soul into a standardized mould?

Is our lust for mere bigness and commercial success so great that we are willing to allow it to suppress our inherent desire for modest charm and beauty in our buildings for public education?

These are priceless qualities which must be sought if our school buildings of the future are to be distinguished contributions to the advancement of education and the fine arts.

VI
MODERN OPERA HOUSES IN EUROPE AND AMERICA

By Alfred Shaw, Architect

AN Opera House, it seems to me, is an edifice which will have in it a complete stage for the emotional or technical exercises of artists in opera and for the preparation and rehearsal of them; an auditorium where in comfortable accommodation an interested audience can see and hear the opera perfectly; and arrangements for lounging between the acts and arriving and departing conveniently. All of these shall be designed in an architecture suggesting its purpose, fair in aspect both within and without and suggesting not too obviously that life, after all, is well worth living.

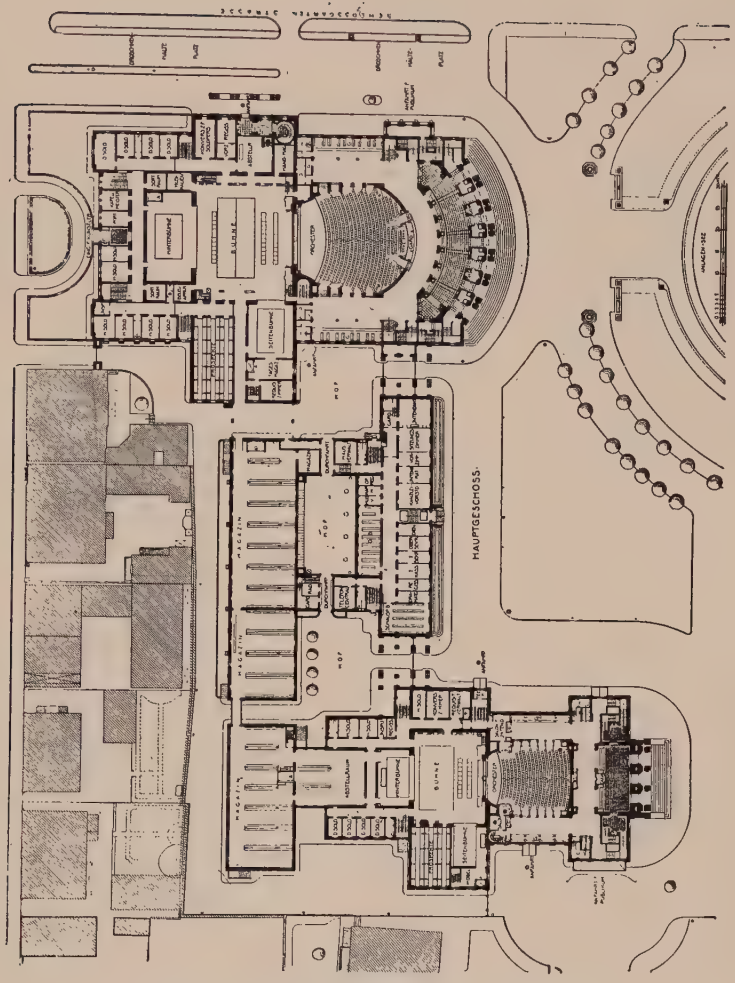
This edifice, to grandly exist, should have a dual soul consisting of a great opera company of glorious traditions and a patronage both critical and appreciative. It is not, however, within the province of this article to comment on anything but opera houses themselves, and in an article of this length it is necessary to touch only the high spots.

In considering the character of an opera house any one of us

is likely to look at the thing as it concerns us particularly; thus the architect will be likely to search for charm both on the exterior and in the house itself; the prima donna will look at the style of a dressing room or the acoustical reaction on the artist; the stage technician will be likely to ignore everything in front of the footlights; the great hostess will be concerned about the background of the boxes and the sight lines both to the stage and to the other boxes; the maestro will sense any acoustical defects; the business manager will count the seats in each section or balcony. Other specialists — electrical, mechanical, technical or psychological will see what is right or wrong in their specialty and though one may cry louder than the other or they all cry equally loud, all must be heard and all should be made as happy as possible.

In a discussion of strictly modern opera houses our whole subject could be covered in three or four places as there is apparently only one real modern opera house in America and three or four in Europe. The discussion, therefore, might be broadened to include any modern developments in the construction of opera houses and would involve work which has been done in some of the old houses.

An opera house in any city must be designed to suit the conditions prevalent at the time of its conception and these conditions will vary in different cities in the same country and at different times even in the same city; thus in the United States — in New York and Chicago the architects have had definitely different programs outlined for them and different difficulties to overcome. In Germany in the comparatively small city of Stuttgart the problem becomes entirely different from that in Berlin; in Stuttgart a small house with a complete



DIE STAATSTHEATER, STUTTGART, GERMANY

Max Littmann, Architect

and independent plan is sufficient for moving through a season, and in Berlin the larger type of house such as the Municipal Opera at Charlottenburg, seating a larger number of people, is required there. In accordance with a German law all opera houses in that country occupy an entire block with access on all sides; this naturally presents an architectural opportunity and a fine setting which sometimes is difficult to achieve in metropolitan areas in the United States.

It is quite apparent that most of the new opera houses are being built in Germany and the Germans have been more thorough and more enthusiastic in construction and design of opera houses than any people in the world. There are, of course, a great many houses in Italy but they are usually small and do not claim a place in the honor roll as buildings, and upon inspection one finds a great deal of German electrical and mechanical equipment in them.

It is an interesting reflection that the greatest houses need not necessarily hold the greatest name, even the fundamental considerations of beauty and acoustics have been sometimes so completely forgotten in the triumphs of production that hardly a thought is given to them by anyone. A notable example of this is Ravinia where prima donnas compete with the whistles of locomotives and rumble of the great trains which follow. The same contrast works much in the other way as well; although I am not familiar with the quality of the opera produced at Stuttgart, it is certainly not one of the great companies, but the house is one of the most charming in the world and as complete as any in Europe. While not modern decoratively in the sense that the Kroll Opera is modern, it has none of that somber rococo that showed so often in the houses before it. There is in the first place a great park

in the center of Stuttgart in which this jewel is set, not pompously as in Paris, but charmingly. There is a chaste originality in its adaptation of renaissance and the buff stone exterior makes colorful shadows and contrasts pleasantly with the green of the park; this beauty is reflected delightfully in the small lake in front of it.

The Stuttgart scheme has two theaters — the large house seating 1,200 and the small house about 800. Carefully studied and ingeniously arranged around the stage for the large house are the various agencies and subsidiaries of an opera, including dressing rooms, rehearsal halls, scenery lofts, studios, curtain storage, armory shops; and practically all of these are duplicated in a small way around the small theater. The stage equipment, while one of the most modern in Germany, does not impress an American as being simple enough or being extremely modern, but Mr. Hansing, the technical director, told us that it works very well for the Stuttgart Company. The seating arrangement of the whole house is extremely good, in that there are no aisles and all the seats are placed with ample space, both laterally and longitudinally. This arrangement, while not possible within the zone under the control of the building code of a large American city, is very excellent where it can be worked out as in the Goodman Theater in Chicago. As in other houses in Europe a seat check is always accompanied by a coat check representing a hook in the check room, and checking is obligatory. On account of it being ample it causes no delay to the patron and eliminates completely the nuisance of the patrons having to take their wraps into the theater.

The Royal Box at Stuttgart is not too lavishly evident in the

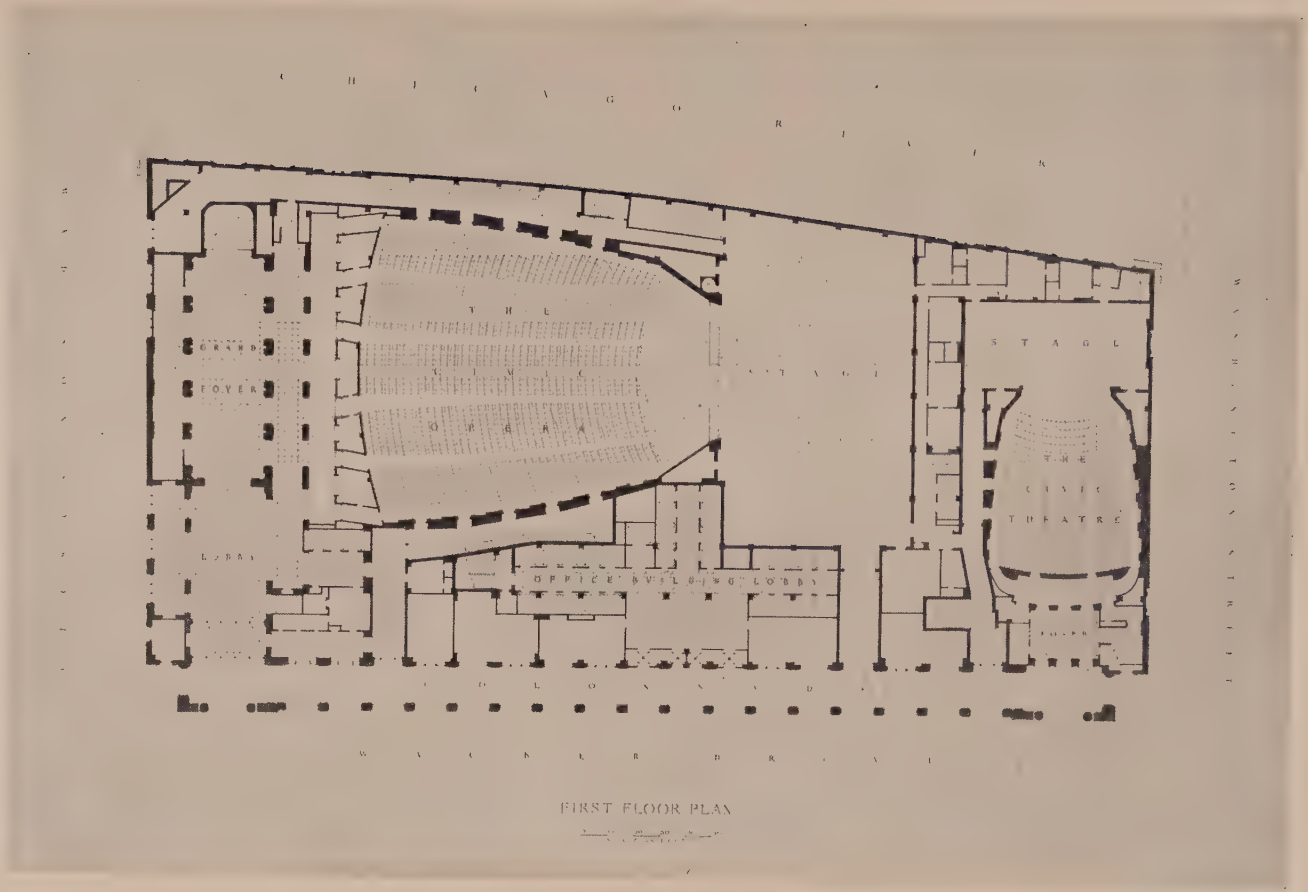
auditorium, but a suite of rooms just off it to the rear is exquisitely handled; there is a reception room large enough for a small ball, a supper room with little foyers and all that would be an appropriate background for a reception or a supper.

The Municipal Opera at Charlottenburg in Berlin is perhaps as well equipped a building as any large house in Europe. It may lack the glory which the Scala and Paris will always exhale, but the front and rear, inside and outside, are well thought out and successful. The acoustics are good and the stage is marvelously large, the paradise of any stage technician as far as room is concerned; the planning of the foyers, staircases, check rooms, buffets and restaurants is obviously excellent.

The Kroll Opera, also in Berlin, has a very interesting auditorium. The conception is modern and executed in a glistening dark wood and, where the gold detail occurs, it has an entirely original character.

The Prinz Regenten Theater in Munich, recently modernized decoratively, still has its old exterior and can hardly be called a modern theater.

In the larger houses in Europe as at the Staats Opera in Berlin, and at the opera in Hamburg, extensive changes have been made to the stages and in Rome, I am told, the entire house has been rebuilt by Mussolini. In most of these houses, as at the Scala in Milan, the chief changes have been to the stage; more modern machinery and electrical equipment have, of course, been added and in all these houses great alterations have been made to provide room at the sides of the stage. This side room as desired by the stage technician should



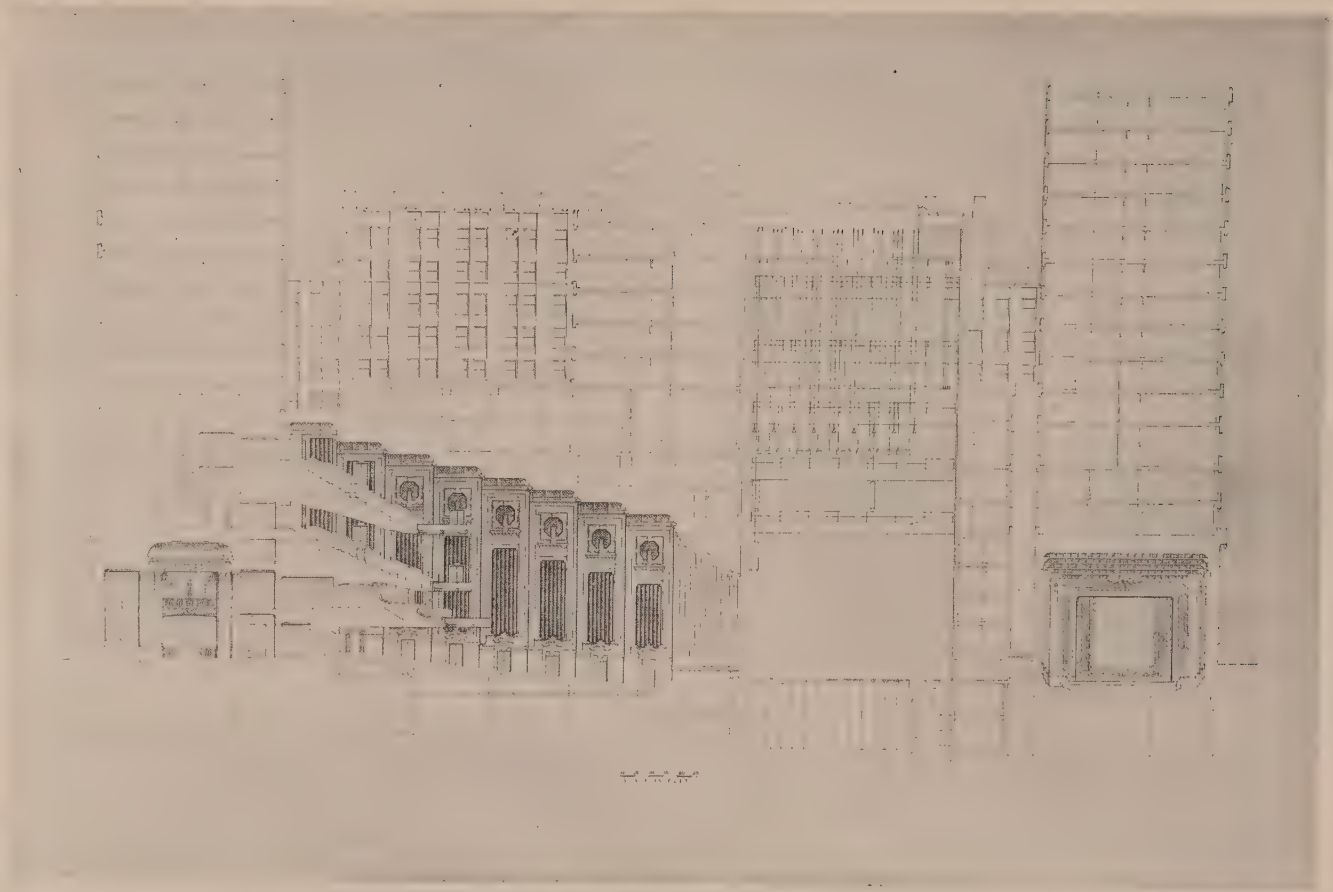
CIVIC OPERA HOUSE AND THEATER, CHICAGO, FIRST FLOOR PLAN

Graham, Anderson, Probst & White, Architects

be on both sides about the same area as the actual visible stage; this permits the setting up of an act before it is ready to take place. A sliding floor is provided at some houses, but where it is not installed the properties and gear are set up and moved on. This gives a fine opportunity to set up practically a whole new act and as the passing act moves off to one side the new act is moved in. There are a few finishing changes to complete the scene, the electrician gets set and the opera goes on. The facility with which these changes can be made becomes quite important, for while a promenade between acts intentionally scheduled may be the pleasure of the evening to the music weary soul and be an opportunity for social contact, there is nothing worse than sitting in front of a booming shift, which should be about two minutes and goes sadly on for fifteen or twenty.

In America, Boston and Chicago have the most modern houses. The plan and conception of the Boston house is all that could be asked for in the conventional manner. The interior is capably handled and has a certain old world charm. Mr. Beatty, of the Chicago Civic Opera Company, told me that while used by the Boston Opera Company, its stage equipment was better than any house in this country, not even excepting the Metropolitan in New York. The regretted disappearance of the Boston Opera Company shows how a house may take life from its occupants as at La Scala and at the Metropolitan and Ravinia, or as at Boston be almost forgotten.

The latest opera in America is here in Chicago and has been designed to fill a particular program and to take advantage of any of the experience which other operas have had. The foyers and grand staircase are more generous than any house in America. The box

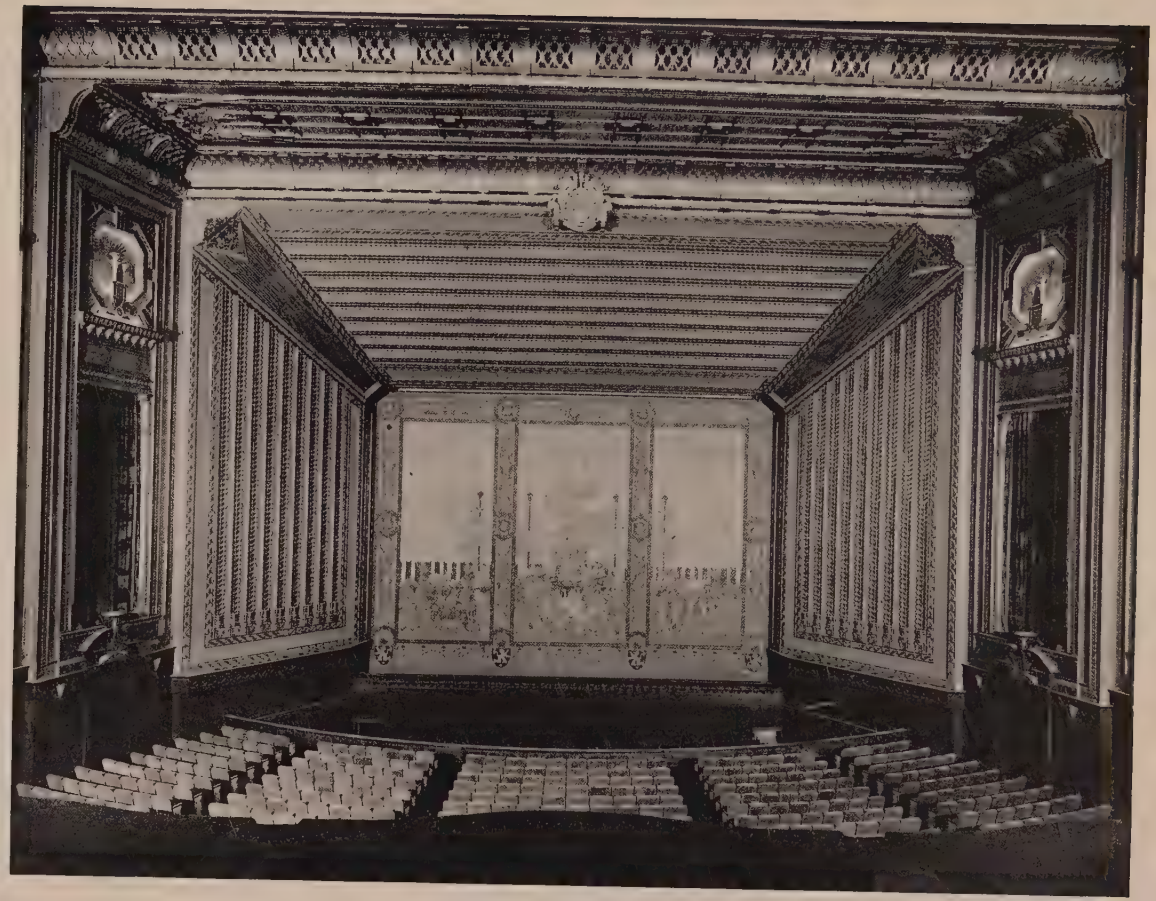


CIVIC OPERA HOUSE AND THEATER, CHICAGO, SECTION
Graham, Anderson, Probst & White, Architects

floor has been lavishly and comfortably treated, but the boxes themselves do not run around the side walls in the traditional "diamond horseshoe," and the general seating arrangements have been made to include a large number of good seats for the habitual opera-goer at the usual single seat rates. After Mr. Insull's conception of the great idea, the architects, with Mr. Stanley Field's advice and approval, worked along with the Messrs. Johnson, Polacco, Moor, Beatty and others of the Chicago Civic Opera Company, very much as an architect will with a client until he finds out what kind of a house he wants. These men were consulted continuously from the start. The general conception was guided by primary considerations of vision and audibility and from every seat in the house one can see and should hear well.

The stage, which will be described in detail in another place, is by far the most modern in the world, a miraculous and thrilling installation. It has a gridiron 145 feet high and a mechanically movable floor and cyclorama; electrical equipment not equaled by any; storage for practically a whole season's repertory is provided in the house itself; the dressing rooms, both for stars and chorus, are equipped and designed in the most modern manner. The Civic Opera Auditorium seats 3,472, and there is also in the same building the Civic Theater, with complete stage equipment, seating 878. Extended curb space for arriving vehicles runs along Wacker Drive, and the sidewalk on this side is covered with a portico about 400 feet long.

This is not the place to discuss the merits of the Chicago house in detail, but I would put down a general summary about what appears



PROSCENIUM, CHICAGO CIVIC OPERA

to be valuable in the conception of a modern Opera House. It should include:

(A) An ample stage say 80 feet deep and 150 feet wide, the center or visible area being made flexible by an arrangement of traps as small as practicable. These traps should rise and fall from the stage floor and be arranged to tilt both ways. (In visiting European operas, it was interesting to note that there was not a stage with the flexibility of the old Chicago Auditorium, built forty years ago.) There should be light bridges and drop pipes to the limit of efficient operation and storage space near the stage. The drop vault should be in the stage and have a lift as long as the longest drop rolled up, similar to the Civic Opera at Chicago or Stuttgart. The question of cyclorama has had many answers from the movable plaster monster at Charlottenburg to the deflated "cyc" tried out not too successfully at La Scala, and including the roll away canvas scheme most generally in use. In Chicago our conclusion was a permanently stretched canvas cyclorama which moves vertically so as to permit any stage equipment to be brought in under it. This is also done to avoid the wrinkles which necessarily remain when the cyclorama has been rolled.

(B) The auditorium should be designed with the idea of placing a given number of seats, preferably well under 4,000, so that from any one the stage is visible without straining, and the faintest tone can be heard.

The question of acoustics must be solved: First, to blend the

CIVIC OPERA BUILDING, CHICAGO, FROM THE SOUTHWEST.
Graham, Anderson, Probst & White, Architects

orchestral and vocal tones; secondly, to have the sound waves reinforce one another for the more remote parts of the house; third, to avoid any noticeable echo; fourth, to have enough echo to produce a richness of sound known technically as reverberation, and being the opposite of deadness.

(C) In front of the orchestra pit — preferably a movable one — which is the stopping point of the workshop, the general atmosphere should be gay and pleasurable, the sort of a place where in the company of friendly souls one can expand or relax and be taken into the stirring movements which opera alone, by its triple appeal of music, color and poetry, can produce. To illustrate my point I should contrast the gentle rich quality of La Scala to the extreme mechanical modernity of the Salle Pleyel in Paris.

The style of the auditorium can never hope to harmonize or echo the every varying note of the act, but should not be too much in evidence or insistent stylistically. The Greek Theater, with nothing but seats, was in this respect ideal.

The painstaking care, the worry and ingenuity that many men put into these buildings, is not on the minds of the average patron; the difficulties — mechanical, electrical, structural, financial, acoustical, visual, psychological, constructive, decorative and architectural — that must be overcome are forgotten in the general result; there is simply a unified quality which, good or bad, is all we see. I think this is just as well.

VII
HISTORY OF CINEMA THEATER ARCHITECTURE

By George L. Rapp, Architect

IT is a far cry from the nickelodeon of yesterday to the palatial motion picture theater of today and yet the period of transition covers a relatively short span of years.

The history of the cinema itself is a fascinating story. After the invention and development of photography, many investigators worked over the problem of picturing motion. Edward Muybridge, who is often called the father of moving pictures, in 1872 studied the movements of a trotting horse by means of a row of twenty-four cameras, exposed in order as the horse passed before them. Muybridge developed a method of projecting his photographs so as to stimulate movement, but his apparatus was necessarily clumsy as he had only glass plates. A light, flexible, continuous film was needed as a substitute for the glass, and this was invented by Goodwin and produced by Eastman.

In 1893, Thomas A. Edison invented his kinetoscope, which successfully depicted motion by means of photographs printed on an endless strip of celluloid film. But the pictures in this machine could be viewed by only one person at a time. In 1894, C. Francis Jenkins was the first to produce moving pictures by modern methods. Jenkins

and his partner, Armat, improved the original machine, and, the right to manufacture it having been secured by representatives of Mr. Edison, it was marketed in 1896 as the Edison Vitascope. Projectors and pictures made by Robert Paul, of London, and Lumière, of Paris, were also exhibited the same year, which may be considered as the beginning of the modern motion picture industry.

The first studio for making motion pictures was a little, black, paper-covered shanty built by Edison near his factory in New Jersey. Today a whole city in California is given over to the staging and filming of photoplays. A similar and equally interesting comparison, architecturally speaking, is provided in the development of the motion picture theater, which has followed in the wake of the rapid and phenomenal growth of the film industry.

The history of motion picture theater architecture may be divided into two periods. The first period covers the time when the motion picture was shown in very small houses for that purpose only and as secondary to vaudeville in the larger theaters. On August 23, 1929, the Western Pennsylvania Historical Society unveiled a bronze tablet in Pittsburgh on the site of the first nickelodeon founded June 1905 by the late John P. Harris. The second period was entered when the motion picture became the principal attraction in the larger type of theaters with the stage show as secondary. The universal popularity of sound pictures and the prospect of wide dimension film, in the opinion of many, will result in a new third period in cinema architecture.

The first motion pictures were regarded as a novelty rather than as a definite contribution to the advancement of art, travel, science

and literature, qualities which stamp the motion picture of today as a tremendous force in education. Pictures of the vintage of 1896 possessed none of these constructive and enduring features; on the contrary, they were mediocre productions of the slap-stick variety.

The early exhibitor was wholly without a barometer. True the curiosity of the general public was aroused but there was that element of uncertainty as to the future of the new form of entertainment that caused him to proceed cautiously and with a minimum of expenditure. Consequently the first of the strictly motion picture theaters were the converted store type. At the least possible expense the store front was removed and replaced by a box office between entrance and exit doors with a projection booth immediately above. These stores, as a rule, were long, narrow rooms with low ceilings. The capacity seldom exceeded 300 and the seats generally were folding chairs. The first pictures also found their way into such places as dime museums, assembly rooms, and cheap concert halls in Eastern cities. Architectural design and provisions for the safety or comfort of patrons were given little or no thought. To those of us who recall the days of " One Minute Please While the Operator Changes Reels," it is apparent that the sole interest of the old time showman was to put a picture on the screen and the audience in the seats. In other words, a theater building was nothing more than a large room to house both.

Notwithstanding the makeshift arrangements made to accommodate the product of the new industry, the pioneer motion picture exhibitor prospered. As the business became more stable specially constructed buildings began to replace the store type. Competition between neighboring theaters soon convinced rival showmen that the

theater that gave its patrons a little more comfort and presented a better appearance slowly crowded out its competitors. The result was that small type theaters began to be built that were fireproof, well ventilated and architecturally pleasing.

The seating capacity of these new small type motion picture houses was also increased to 500 upwards to 1,000. The majority of these houses had small platform stages in front of the screen so that the motion picture program could be supplemented with singing or dancing acts. Pipe organs and ventilating systems were added and the architectural design generally improved, but no radical advances took place until the introduction of the deluxe type of cinema theater.

During this same period little change was noted in the vaudeville type of house, with the exception that, due to the advancement in steel construction, the cantilever type of balcony was introduced which eliminated all columns in the auditorium. The balcony and mezzanine type of house followed. This type consisted primarily of a large balcony with a horseshoe of boxes placed below, and permitted a much larger seating capacity in close contact with the stage. It also eliminated the isolated feeling that occurs when a gallery is placed above a balcony. Because of its intimacy it proved to be the ideal type for large capacity, one-price theaters, and from it grew the great motion picture theaters of today.

Logically the tremendous development in the production end of the motion picture industry was reflected in demands for a similar development in the exhibition of the pictures. To successfully exhibit the rapidly improving film productions, ideas and problems were presented which rendered the earlier picture theaters and even legitimate

houses inefficient and obsolete and altogether unsuited to the presentation of this modern form of entertainment. It being no longer necessary to have the so-called intimacy of former times, it was a natural step to increase the capacities of theaters, in some cases many times their former size. Due also to the fact that entertainment was continuous, additional problems were encountered which were entirely different from the requirements of the existing theaters, both motion picture and legitimate.

A second period in the history of the motion picture theater began with the advent in the field of a different type of showman — one who believed that people go to the theater to live an hour or two in a different world; that the atmosphere of a palace should prevail in a theater, and that this could be arrived at by gorgeous stage settings, luxurious drapes and enchanting music.

It is generally agreed that Balaban & Katz were the progenitors of this new type of showman. They became experts in the study of the psychology of the theater-goer and are responsible for many innovations in theater management.

The erection of the Central Park Theater in Chicago in 1914–1915 by Balaban & Katz was the forerunner of a general type in which the motion picture became the principal attraction. This theater of a balcony and mezzanine type with a large seating capacity did not have a stage when first erected as it was planned primarily for motion pictures. The large seating capacity permitted programs of variety, appeal and costliness which were beyond the sphere of the small house. Provisions were made for a large orchestra and a costly organ was installed.

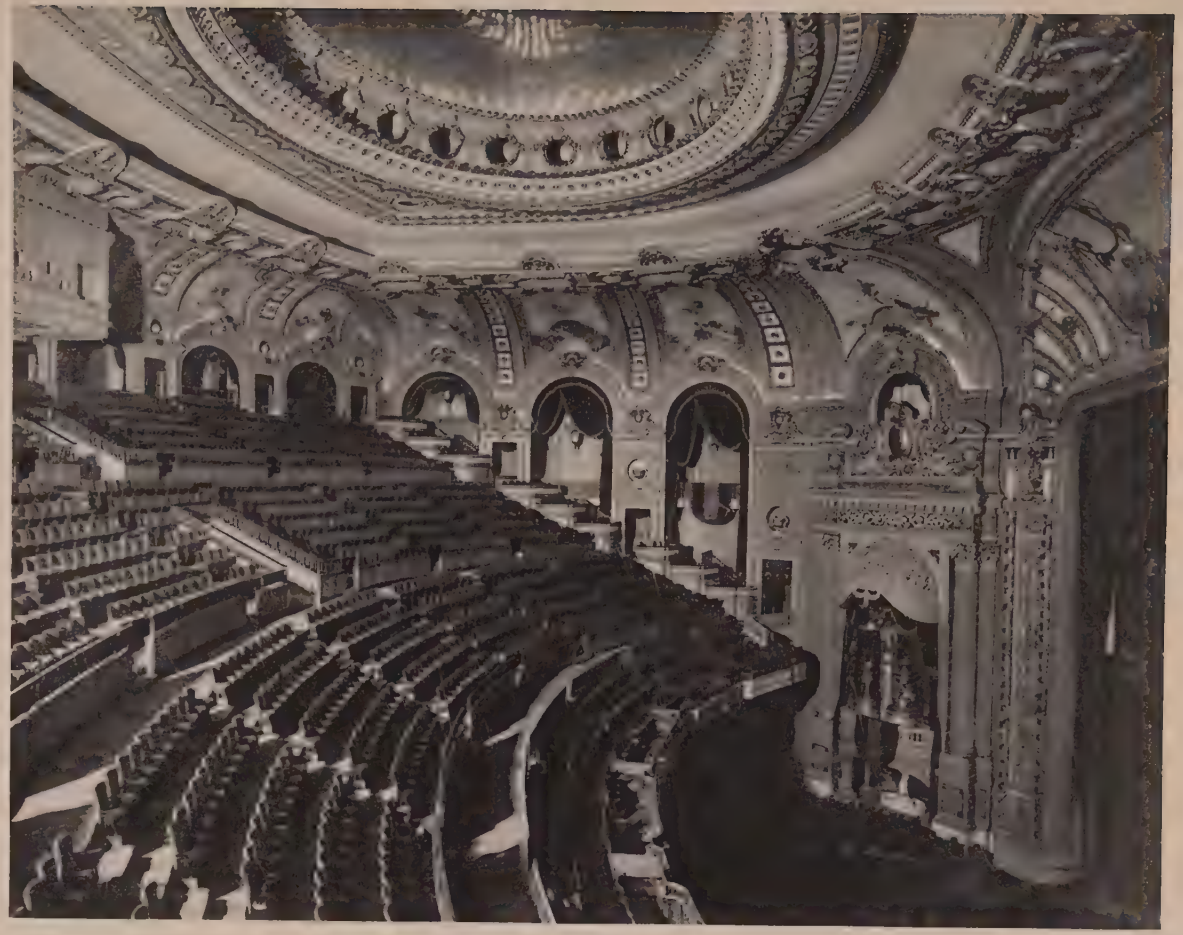
The Central Park was furnished and decorated in a manner not

previously attempted in a motion picture theater and the effect on theater-goers was very pronounced. The clear direct view of the stage unobstructed by columns and the intimate contact that is always felt in this type of house made it an overnight success. Immediately plans began to be formulated for a much larger and more luxurious neighborhood motion picture theater to be worked up along its general lines.

The situation was without precedent as the problems brought up by such a theater were entirely different from those presented by a vaudeville or legitimate type. As complete shows were to follow one another continuously, holding spaces would have to be provided to comfortably take care of those waiting for the next performance. These spaces would have to be amply large, well ventilated and beautified with pleasing vistas so that those waiting would not feel confined and yet permit the audience to exit smoothly at the same time. The larger entrances required would have to have the attractions conspicuously displayed to draw the attention of the passerby and yet be inviting.

The longer shows and waiting necessitated larger and more comfortable retiring rooms. Once in the large auditorium the patron must have comfort with easy sight-lines, and as a stage show was to be added to the silent drama, the acoustics would have to be as near perfect as possible. The larger seating capacity of the balconies demanded broad and gradually ascending stairways leading from impressive lobbies and foyers that would make the way up attractive and inviting.

An intensive study of these problems over several years resulted in the next great forward step in the development of the motion picture theater, the Tivoli in Chicago, opened in February 1921. This theater of a seating capacity of 4,000 was the largest ever attempted in an



CHICAGO THEATER, INTERIOR
C. W. & Geo. L. Rapp, Architects

outlying district and was a tremendous advance in all ways over any motion picture theater that had been built before.

The entrance gives an alluring view of the lofty colonnade and beautiful light fixtures of the grand lobby through a large arched window and being brilliantly lighted contrasts splendidly with the severe lined commercial buildings in the neighborhood.

Upon entering this theater the patrons find themselves in a lofty, imposing and handsomely decorated lobby running the full width of the building and the equivalent of six stories in height. At the far end is a decorative stairway leading to the mezzanine and balcony and the entire area is available for the holding of the patrons waiting for the next show. The plan itself is so well conceived that even with as many as 2,000 persons waiting the audience of the theater upon leaving does not come in contact in any way with those waiting and consequently exits smoothly. The stairways are so invitingly arranged that the mezzanine and balcony are very easily reached with a result that the balcony and mezzanine are patronized as well as the orchestra floor.

The spacious balcony and mezzanine promenade foyers, luxuriously furnished, opening directly into the lofty arches of the grand lobby, completely eliminate any feeling of segregation from the orchestra floor. To increase the feeling of close contact with the stage the architectural treatment of the side walls was carried into the stage settings creating the impression that no separation exists between the stage and auditorium. The entire theater was superbly furnished and the walls of lobbies, foyers and retiring rooms hung with works of art and beautiful drapes.

The effect on the theater-goers was tremendous and the theater was a great success from the start. Practically all large modern motion picture theaters have been influenced by this house.

The part which architecture has played in the planning and building of motion picture theaters brings out the point so frequently advocated by architects that good architecture is a genuine business asset. It is now an established fact that theater audiences have increased in the summertime over the winter attendance. This is a certain indication that the public does appreciate the efforts made by theater owners and architects to provide comfort and pleasing surroundings during entertainment.

Today there are motion picture theaters in almost every town and hamlet throughout the continent. In the larger cities our theaters are among the most palatial buildings. Modern motion picture theater architecture has been influenced largely by the French, Italian and Spanish masters. The small town has not kept pace in the architectural development of the theater. Consequently many small town exhibitors have felt the sting of competition from nearby cities, which has been augmented by the automobile and good roads.

It is not uncommon nowadays to have people discuss the architecture and decorations of a theater. They seem to be more interested in attractive interiors than they were before the days of the modern cinema theater. By vision alone good taste and a desire to see beautiful things is cultivated.

The architectural treatment of the present day theater is one which brings forth innumerable ideas in decorative work. The theater advances with the public in wants and expectations. Every building

brings out some new and outstanding idea and the architect engaged in this type of work is ever ready to reach forward and grasp anything which may be of help in producing something in the way of decorative value for the wishes of the theater-going public.

VIII
CHICAGO THEATER BUILDING IN RETROSPECT

By Arthur Woltersdorf, F. A. I. A.

Part I

THE first recorded theatrical performances in Chicago were given in the Sauganash Hotel in the early 1840's. The building can not be spoken of as a theater building. The town, however, did make pretense to such a structure in Rice's Theater, erected in Randolph Street in 1847. It was a frame structure and disappeared in a fire in 1850. Then John B. Rice, the owner, later Mayor of Chicago and Congressman, rebuilt his theater with brick walls and operated it as a theater up to the building of McVicker's Theater, which was opened November 5, 1857. McVicker's Theater was considered so far in advance of Rice's that Rice's failed to attract attention from then on and was razed in 1861.

McVicker's, located where a theater by that name still stands, had a stage 80 by 53 feet, and an auditorium with a seating capacity of 2,500. It was considered a house far in advance of anything that the West offered at that time. McVicker's, in construction, represented the best and safest that the times knew and circumstances warranted. The walls, of course, were of brick. By 1871, however, Mr. McVicker felt the times had advanced so that a remodeling of the structure was undertaken, leaving nothing of the old but the enclosing walls. The

opening occurred on August 29. Six weeks later the theater disappeared in the great Chicago Fire.

The building of Crosby's Opera House is a dramatic story that requires the telling in some detail. Uranus H. Crosby, having made money in his distillery on the north branch of the Chicago River, was moved by public spirit with a desire to erect for Chicago an opera house that would outshine anything the new city had dreamed of, and whose name and fame would reach the length and breadth of the land. Of experience with such ventures, he had none. He selected W. W. Boyington as his architect, and the two left for Europe to study opera houses. Returning, plans were made, with little regard for cost, and on April 20, 1865 the house was opened with a performance of "Il Trovatore" by a grand opera company from New York under the management of J. Grau, with a four weeks season.

The cost of the building with its equipment had been upwards of $600,000.00, a very large sum for that day in a pioneer city. Crosby was insolvent at the inaugural. The plan and arrangements of the building did not fit the Chicago of that time, and much difficulty was experienced in bookings. Among the attractions was a reception to Edward Payson Weston, a hiker, well remembered even today, for he passed away no more than a year ago. This reception took place in Crosby's Opera House on November 28, 1867, after Weston had completed a hike of 1,238 miles in twenty-six days from Portland, Maine, to Chicago.

Financial disaster, however, stood before Crosby and a lottery was instituted to dispose of paintings, furnishings, and even the Opera House itself. Tickets were sold all over the land. A. H. Lee of Prairie-

du-Rocher, Illinois, drew the lucky number, and he testifies that Crosby paid him $200,000.00 for his ticket. History records that this was the greatest lottery ever held in Chicago.

The institution carried on, sometimes with the help of J. H. McVicker booking attractions there, until October 8, 1871, when Theodore Thomas and his orchestra were prevented from filling an engagement by reason of the great Fire, which left nothing but smouldering, ruined walls of Crosby's Opera House. Its site today is marked by the Stop and Shop Building on the north side of Washington Street, between State and Dearborn.

Woods Museum, built in 1863, contained a pleasant theater, woefully lacking in safety measures; Bryan Hall, with 1,100 seats, built in 1860 on the site of the present Grand Opera House, became Hooley's Opera House in January 1871; Aiken's Theater in Dearborn Street, dating from 1868, became the Dearborn Theater in 1869; Academy of Music in Washington Street, between Clark and Dearborn, built in 1863; the first Olympic, a vaudeville house in 1868 at Clark and Monroe Streets, were the principal other downtown theaters, and all were swept away by the fire of October 9, 1871, leaving nothing in its wake but ruined walls and ashes.

Little commendatory can be said of the construction for safety of these early houses. Building ordinances or fire ordinances, such as existed, were poorly drawn, inadequate to the problem and often observed in the breach. There was no established building code. Immediately after the Fire, the City Fathers, together with many citizens, including architects, became alive to the necessity of a well organized building code with a body of ordinances, when the Common Council appealed

to the Chicago Chapter, American Institute of Architects, for help in formulating such a body of local laws. This small band of Chicago architects, organized in 1869, became suddenly active, and following the Fire daily meetings were held to discuss and formulate building ordinances for the safety of the city. Their recommendations were handed to the aldermen who made them into law, with or without modifications.

Two years passed and we find again this little band of architects in the fall of 1873, when a financial and industrial depression rested like a pall over city and country, discussing building ordinances. They record their discouragement in how the city, since the Fire, has been rebuilt virtually over night with structures that are so faulty that they are dangerous. Imperfect as the building laws were, these men record lack of enforcement and complain that laws are useless when men of wealth and influence, property owners, will through their political influence erect unlawful structures. How well founded these fears and complaints were was demonstrated before many years by the rapid destruction of the theaters built after the Fire.

The record for speed in building is held by the Academy of Music at Halsted and Madison Streets, built in thirty days and opened to the public January 10, 1872. Many refused to enter its portals because of fear that the green brick walls might collapse and bury them in the ruins. Aiken's Theater, on the northwest corner Wabash Avenue and Congress Street was opened in October 1872 and totally destroyed by fire in July 1874.

McVicker's Theater, always a leader in Chicago in what was best in theater construction as well as entertainment, opened in August

1872 and was remodeled in 1885 to bring it more nearly up to the standard of safety achieved in this class of building through the advance of fireproof materials. Fires did occur in McVicker's after that and there were more remodelings. Adler and Sullivan were the architects retained and achieved results that were in advance of any others in the city in this class. The street front was not noteworthy, but the interior became beautiful under the magic hand of Louis H. Sullivan. Many remember the beautiful proscenium arch with stage boxes covered with that delicate and intricate surface ornament for which Mr. Sullivan was famous. The tone of this work was a dark brown and gold. So McVicker's lived on, offering the best in drama and occasionally in opera to the citizens until the present decade, when a different form of entertainment was decided upon and the building wrecked.

In 1925 McVicker's cast off its traditions and character and with these its dress. The interior was ripped out and only side and rear walls were left standing. A New York architect planned a sumptuous movie palace to carry on under the old name. For the street he provided a façade in gray terra cotta that reproduces a Greek Doric temple front, serious and somber, archæologically correct according to the books, floating on an expanse of plate glass shop front flanking vomitoria serving as entrances and exits. Through these vomitoria humanity mills its way into the bowels of the temple. O Zeus, you must feel stung!

Hooley's Theater was opened on the new site October 1872. This site, to the west of the Sherman House where the Sherman Garage now stands, was approached through a twenty-foot building from Randolph Street. The Hooley's of '72 gloried in its gasoliers. It was

nearly ten years before electricity appeared. (The earliest theaters of Chicago, including Rice's, were lighted by oil lamps with reflectors.) Here Hooley's remained until 1927. R. M. Hooley, the proprietor, created here a home for polite drama where Augustin Daly's Company and the Frohman Companies played year after year. Hooley's, about 1900, became Powers' Theater, retaining the high character of Hooley's. And Powers' operated until the building was wrecked in 1926. From time to time the theater was rebuilt and improved, keeping abreast of the advance in fire-safe construction and decoration. Adler and Sullivan remodeled the building, and while other hands followed them in decoration, no changes were made in the plan for seating, sighting, acoustics, and the like, laid down by Dankmar Adler.

The New Adelphi, later Haverly's, was built on the pre-Fire post office site at the northwest corner of Dearborn and Monroe Streets, now occupied by the First National Bank. The post office street walls had remained standing through the Fire, and these were used by the new theater. It was the largest house in Chicago and — a fire trap. It opened January 11, 1875; reconstructed by Haverly in 1878 and razed in 1882 to make room for the First National Bank.

While Haverly was nearing the end of his lease, the Columbia Theater across the street on Monroe was planned for Haverly's occupancy. The Columbia was built in eighty-eight days after ground was broken, and opened September 12, 1881. The street front was a pretentious affair of slabs of Lamont limestone, then called marble, decorated with a wealth of overhanging galvanized iron ornament, — the work of Oscar Cobb. Oscar Cobb's work was always recognizable by excessive cornice, band course and dripping ornament projections.

Three of his works come to memory: the Columbia, the Standard, and the Academy of Music. Two of these have passed and only the Academy remains, with its excrescences long since shaved off. This extravagance of projection was not expensive, since it was always made of galvanized iron held to wood furring, anchored, or at least supported, in the masonry wall behind by means of wood scantling. Such design and construction, fortunately, is today not done. The Columbia was a large house. Important companies were booked here, including the Mapleson and Damrosch Opera Companies. In the late '90's of the last century, it disappeared in a fire starting about midnight after a performance. In twenty minutes the whole structure was a heap of ruins.

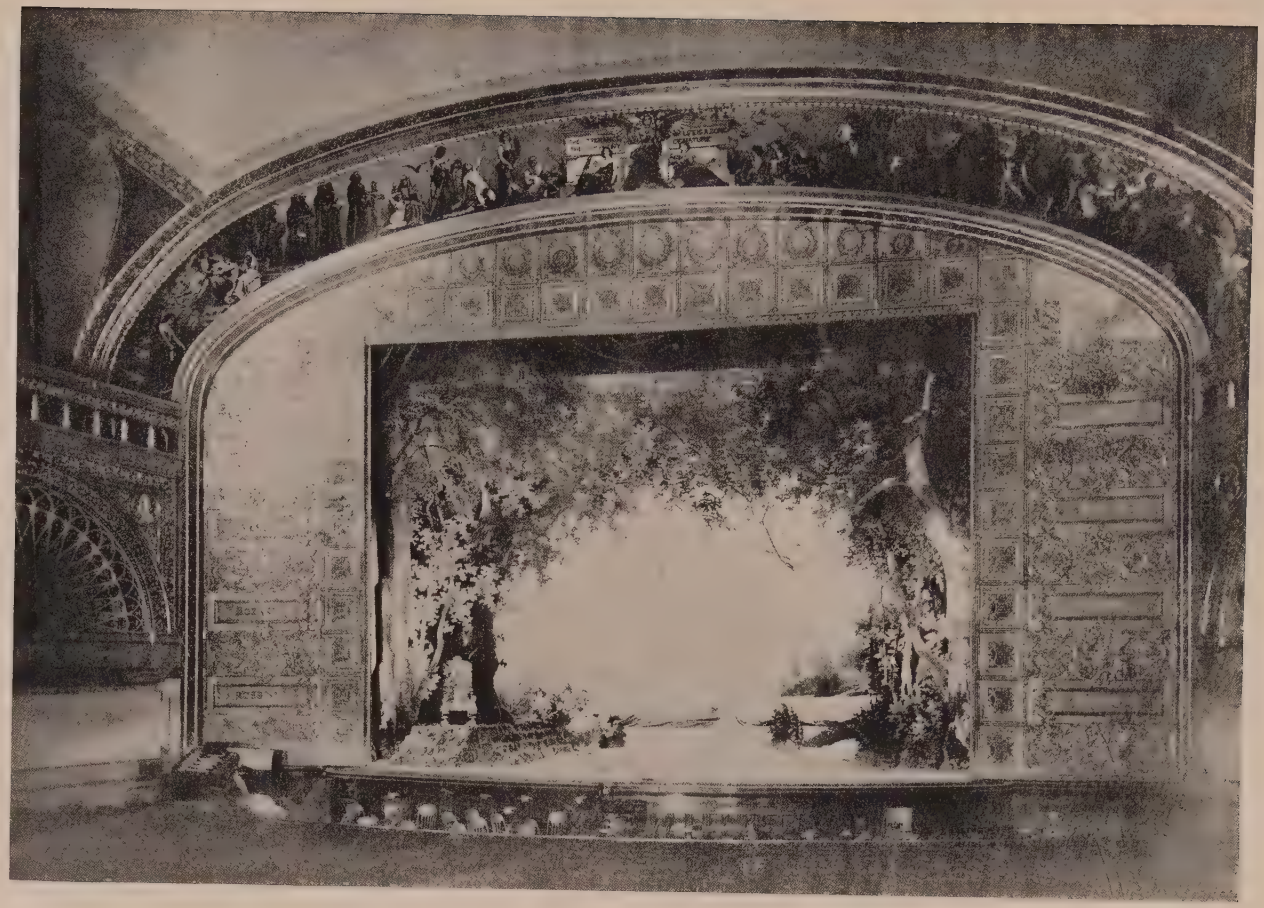
On the site of pre-Fire Bryan Hall and Hooley's Opera House, the Hamlins built Foley's Billiard Hall in 1873, converted it into a garden, then a vaudeville house, and in 1878 made of it a legitimate theater known as Grand Opera House. John A. and Lycander B. Hamlin had for some years been employing entertainers in their medicine shows to sell Hamlin's Wizard Oil. From medicine shows to theater management was not so far a cry. The Opera House offered splendid attractions. In 1880 the house was reconstructed by Adler and Sullivan, and that plan remained in effect through all the later remodelings of entrances, stage boxes, decorations, up to 1927 when a new façade and entirely new interior was built within the other old walls, after plans by Andrew Rebori. The old Grand had a hospitality, — a friendliness, — excellent sight lines, and its acoustics were so good that it was popular for Sunday afternoon concerts for some years.

The Chicago Opera House was opened to the public in August

1885. It stood on the southwest corner of Washington and Clark Streets. It was screened by an office building on both street fronts. Cobb and Frost were the architects and their theater was a large house of 2,300 seats. A wealth of electricity for illumination and stage effects was an advertised feature of the new house. For years it was devoted to extravaganza shows under the management of David Henderson. " Ali Baba " and " The Black Crook " were among the shows well remembered, and here Eddie Foy won his spurs. The Chicago Opera House was razed to make room for the Conway office building.

Chicago was now getting the best the country offered in drama and in opera. The opera companies had been playing in McVicker's, in Haverly's, the Columbia Theater, and even in the Exposition Building on the lake front. Chicago was beginning to feel mature and deserving of a real opera house. Ferd W. Peck was the public spirited citizen convinced of this who constantly sounded his clarion notes, resulting in the formation of the Chicago Auditorium Association, whose function it was to build for the city a great opera house. This came to pass in the late 1880's when the Chicago Auditorium with its hotel and office building was projected after the plans of Adler and Sullivan. Dankmar Adler was the logical man to entrust this work to, for had he not built, or rebuilt, the city's best and most successful and safest theaters, and had he not made a reputation as a scientific architect in acoustics with his Central Music Hall, and was not his partner, Louis H. Sullivan, the bright, particular designing genius of the Middle West?

Steel, structural steel, was not yet fabricated. Cast iron columns and wrought iron beams were the materials for fire-safe building con-



AN ARCH CHICAGOANS HAVE GROWN TO VENERATE
PROSCENIUM ARCH AND STAGE, AUDITORIUM, CHICAGO
Adler & Sullivan, Architects

struction, with heavy masonry walls for enclosures. The projected Auditorium Building had, indeed, heavy walls, — heavier than any Chicago building up to that time had required, — and Chicago's soil for foundations had not been so heavily loaded as would be the case in the Auditorium. General William Sooey Smith was the consulting engineer, and on his recommendation these heavy walls were founded in the ground on a grillage of heavy timbers. Smith's grillage of timbers was not again repeated in Chicago heavy construction. The construction of the building was of fire-resisting materials throughout.

The great Auditorium through 1887 and 1888 took form, and in the summer of 1888 the Republican National Convention was held in the unfinished hall. Here Benjamin Harrison was nominated for the presidency. The dedication took place in December 1889, with Adeline Patti as prima donna of the first opera.

Acoustically the Auditorium proved to be the finest hall in America, and Mr. Adler was called as a consultant far and wide for his advice. He served in this capacity in the building of Carnegie Hall, New York City. The Auditorium still stands, even though our Civic Opera has moved to its new shrine.

Part II

In 1889 the Haymarket Theater in West Madison Street, designed by Flanders and Zimmerman, marked progress in theater planning of this type. The forthcoming World's Fair was in everyone's mind, and Steele MacKay, a famous impresario, had visions of a great theater for spectacles to entertain World's Fair visitors. A company was formed to build for Mr. MacKay, on 57th Street facing Jackson

Park, the north boundary of the Fair Grounds, The Spectatorium. It was a huge structure for temporary use and, hence, much wood was used where brick and tile would have been insisted upon for a permanent building. When the Fair opened, the unfinished walls of wood, unroofed, rose high in the air. The project, through want of money and perhaps other reasons, never flowered. The unfinished building was torn down before the Fair closed.

Prominent German-American citizens, under the leadership of A. C. Hesing, owner of the *Illinois Staatszeitung* felt about 1890 that Chicago was deserving of, and could support, a fine structure containing a theater where German performances would divide the time on the boards with those given in English. These ideas materialized in the building of the new German Opera House in Randolph Street, between Dearborn and Clark, with Adler and Sullivan as the architects. They produced a distinctive building containing, besides a fine theater, stores, offices, and society halls. The building was finished before the opening of the Fair and was known as the Schiller Building. It stands today, altered in street approaches and store fronts as well as theater exits to conform to changing ordinances, but otherwise it is the building and the theater originally projected. So different was its appearance in the street from what had gone before that it aroused much discussion, and architects even today admire the simple, soaring vertical line of the tower with its Sullivanesque crown and cupola. An arcaded gallery above the shop fronts extends across the street frontage, very decorative with Sullivanesque ornament, and carrying busts of German poets, artists, and philosophers in the spandrels. The theater interior was beautiful toward the stage in that Mr. Sullivan's

proscenium arch was a receding and contracting barrel vault, step by step to the curtain. The proscenium boxes were confined by semi-circular arches carrying lunettes of sculpture in relief, representing incidents from stories in Schiller's poems. These sculptured lunettes, by Richard Bock, did not harmonize perfectly with the fanciful and delicate surface ornament covering the barrel vault. The proscenium, however, finished in green and gold, was a beautiful thing. It is still there, though its beauty has largely vanished because of the unintelligent painting of the interior in recent years.

Not long did the alternating performances in two languages carry on. The Schiller Theater then had bookings exclusively in English. After a time it became a producing house under the name of Dearborn Theater, and when that passed, it became the Garrick, which it is today.

In 1895–1896 the Great Northern Theater was built adjoining the hotel by that name on the east. It is the work of D. H. Burnham and Company. Like most theaters it has no exterior architecture, for it is hidden within a great office building. This theater, with approaches from Jackson Boulevard and from Quincy Street, is wide and shallow, with balcony and gallery above the main floor. Its finish is what may be called commonplace renaissance. Contracted spacing in balcony seats produces compression in long-legged occupants.

About this time the Studebaker Building in Michigan Avenue to the north of the Auditorium Hotel, built in 1886 as a carriage repository, was metamorphosed by the original architect, S. S. Beman, into a shop, office, studio, theater and music hall building, the entire known as the Fine Arts Building, containing the Studebaker Theater

and a music hall which is now known as the Playhouse. From north and south street entrances, a north and south corridor extends along the back of the shops, which corridor gives access to the theaters, box offices, and stairs and elevators to the offices and studios above. Studebaker Theater is at the south end; the Playhouse at the north. Both are carefully and well constructed houses, and attract a high class patronage. In 1922 Architect Andrew Rebori rebuilt the Studebaker as it is today.

In 1900 Benjamin Marshall, as architect, built the Illinois Theater. It is a distinctive building for theater purposes only, flanked by alleys on two sides and rear. Coming at a time when the old Chicago Post Office had been razed and a strike in stone quarries occurred, the façade was cut from the Cincinnati sandstone taken from the old post office.

It is the irony of fate, after the earlier poorly constructed theaters that disappeared by fire without loss of many lives, that the newest theater of fire-safe construction should be the cause of 596 deaths in a fire in the first days of its patronage. Yet just this happened in the Iroquois Theater fire the afternoon of December 30, 1903, when its patrons were largely women and children. The fire starting in the scenery, a stage door momentarily open, an asbestos curtain that could not be let down, skylights over the stage on inclined tracks thoughtlessly nailed fast awaiting placement of fusible links, poisonous fumes from the burning painted scenery with air currents from stage carried over balcony and gallery, and the story is told of the death of the majority who lost their lives in the upper levels, 400 in the gallery, 125 in the balcony! Of the remaining 71, on the main floor, at exits, in the

jam, on the alley fire escape, many were crushed to death in the panic to escape. It all happened in a few minutes. And the loss to the structure? Practically none; only to decorations, upholstery, drapes, carpets, scenery. The community was appalled. All theaters were closed. Then a new theater building ordinance was drawn, more drastic in its requirements. Steel curtains and sprinklers over the stage, no standing room, no draped exits, were some of the exactions. Chicago's new ordinance was pronounced the severest and best in the land. The shock in Europe resulted in a study of provisions for safety of audiences in opera houses and theaters, producing more exits and fire escapes. One year after the Iroquois disaster this observer found the Royal Opera at Berlin with iron platforms and stairs from balconies decorating the classic façades.

Some months after the fire the name " Iroquois," cut in the stone frieze over the entrance, quietly disappeared; then a passer-by might have observed a hanging scaffold enclosed on three sides, blanketing the great carved keystone of the entrance arch which portrayed the head of an Indian chief. The front freed of the scaffold, the passer-by now saw the head of a beautiful woman where once had been the Indian. With the new portrait came the new name, Colonial Theater. Under this name the theater operated until 1926 when it was razed to make way for the Oriental, a movie palace now occupying the site.

Shortly before the Iroquois came the Majestic Theater on Monroe Street, a house surrounded by a street and three alleys, a splendidly constructed structure after the plans of Edmund Krause.

In 1909 came the Blackstone Theater on Seventh Street, adjoining the Blackstone Hotel. The theater followed the hotel in construc-

tion. It is a handsome, well built house after plans by Marshall and Fox. The façade is a faithful reproduction of a fine modern French composition found on its native soil.

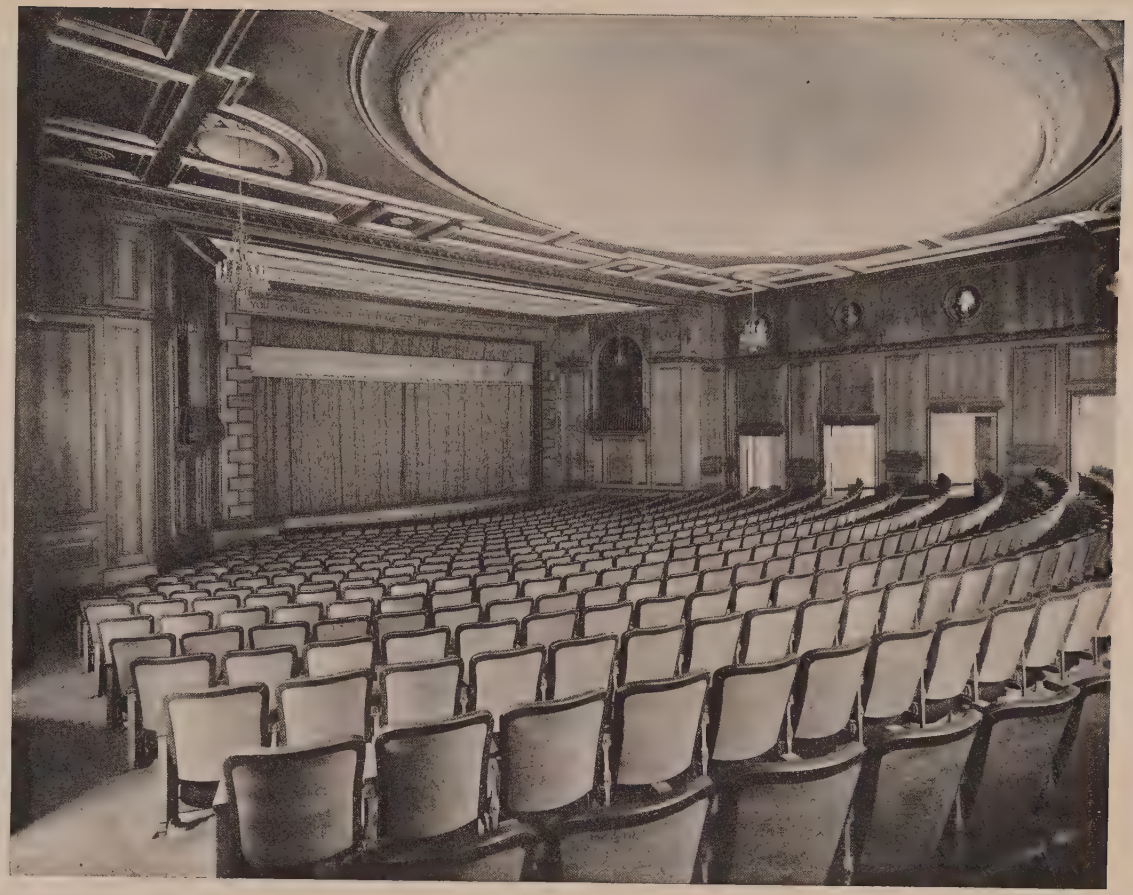
Wood's Theater, replacing the Borden block on the northwest corner of Randolph and Dearborn Streets, about 1910, was designed by Marshall and Fox. Its Randolph Street façade is a store and office building front with the theater entrance a store unit. Only the canopy marks the entrance. The Dearborn Street façade all in terra cotta, with mouldings and forms reminiscent of that transitional style of Francis I, marks the stage wall. At the base of the stage wall occurs an ambitious terra cotta decoration in relief with a traceried canopy over it, the whole of doubtful success. Modeled in high relief, a lady on a pedestal, flanked by rows of females and a formal garden as a background, threatens to leave her pedestal and embrace the passer-by. In the traceried canopy, however, a couple of lonely electric lights burn, apparently to put the pedestrian on his guard.

The Apollo Theater on the southeast corner of Dearborn and Randolph Streets, built in 1920 by Holabird and Roche, was a dignified, competent, even beautiful, exterior in trabeate Greek forms carried out in light gray limestone. The interior, too, was handsome with its simple lines and Pompeian decoration. In 1927 this theater was metamorphosed into a movie palace. The remodeling architect made extensions on the corner, squaring out where the original building was round, and he put a store front in what was the stage wall. A belladonna plaster on a white skin is not a thing of beauty, nor is the ornamental iron extension on the street with its arches so foreign to the body of the building any more fitting. In Skagway this might pass unnoticed; in

Chicago it rouses criticism. And the new interior! But this reviewer does not enter on the movie field. That is covered by another writer of this series.

The Selwyn and Harris Theaters in Dearborn Street at Lake come along about 1924. The architects are Howard Crane and Franzheim. Back of a low Italianate limestone façade are housed the two handsomest and finest little theaters in Chicago, each seating perhaps 1,000 or 1,100 people. The auditorium walls are sheathed with panelled walnut.

In the Art Institute complex, east of the I. C. tracks, has been built one of the most interesting theater structures in America. It is the Goodman Memorial Theater, opened in 1925. Restriction to height of buildings in Grant Park has confined the Goodman to a height above street grade, except for the entrance feature, of from ten to twelve feet. The auditorium floor is approximately on the level of the I. C. tracks. Space under the stage comes below lake level. The foyer, reached by a monumental flight of stairs from Grant Park, is a monumental hall from which passages toward the west extend flanking the auditorium. The auditorium is chaste and dignified, sheathed in oak with a proscenium also of oak but carrying wood quoins, which quoins make this observer less happy. The stage has no gridiron and rigging loft because of height restrictions, the stage roof being no higher than that of the auditorium. There has been introduced here what is known as a wagon stage, where scenes are set on a wood platform on rollers in a loft to the south of the stage, and when wanted simply rolled into place. The seating is also different from any arrangement in America heretofore, though the arrangement is now quite general in Germany.



GOODMAN MEMORIAL THEATER, ART INSTITUTE, CHICAGO

Howard Shaw, Architect

It is the placing of unbroken rows of seats across the house. The Goodman varies from the accepted German plan in that here there is a longitudinal aisle formed between the seat ends and the side walls, whereas the accepted German practice is unbroken rows of seats from wall to wall with a pair of double exit doors serving three rows of seats on each side. A velvet cord down the central axis prevents passage across. In the Goodman the doors are left out, using simply portières over the openings to the side foyers. Building ordinances in American cities do not yet recognize this advanced European plan. Its introduction in the Goodman was possible because of its location in Grant Park beyond the jurisdiction of Chicago Building Ordinances. The late Howard Shaw was the architect of the Goodman.

A visitor to the Goodman today will have a delightful surprise when looking into a room called the Studio Theater, which is an intimate theater with something over 150 seats. It lies off the grand foyer to the south of the entrance stairway, a simple rectangular room with stage off to the east. The walls are unplastered brick, proscenium opening lintel and ceiling beams unplastered concrete. The brick walls are stained a green, the concrete beams silver, the floor black, the seats orange with black edging, an appropriate curtain, and you have one of the most delightful artistic rooms to be seen in Chicago, — charming in its simplicity. Ralph Milman, of the Howard Shaw Associates, deserves the credit.

Of newer vaudeville houses there are two conspicuous examples; the State-Lake Theater and the Palace. The former, opened in 1919, has an auditorium 114 feet in clear width. The theater is screened by a store and office building on both streets. No columns appear in the

body of the house. Eight floors of offices and roof together with enclosing wall are carried on a steel truss spanning the width of the theater concealed in the ceiling above the balcony. The Palace Theater, built 1926–27 is in the Hotel Bismarck block. It is Chicago's de luxe vaudeville house, having a gorgeous foyer of breche-violette marble and gold, costly tapestries and furniture. Both these houses are by Rapp & Rapp, Architects, whose engineers are Lieberman and Hein.

The successful construction of theaters with clear spans as in the State-Lake marks not alone great forward strides in scientific building, but in the art of fireproofing as well, an art in which Peter B. Wight and E. V. Johnson were pioneers.

STUDIO THEATER, GOODMAN MEMORIAL, ART INSTITUTE
Howard Shaw Associates, Architects

PULLMAN BRANCH LIBRARY, INTERIOR, CHICAGO

Square Plan with Service Desk at Intersection of Reading Rooms at Right Angles to each other
Arthur F. Hussander, Architect

IX
PLANNING BRANCH LIBRARIES

By Carl B. Roden, Librarian, The Chicago Public Library

A PUBLIC library building has two distinct functions to perform and should be designed with both of these functions definitely in mind. The first function is that of housing a very active public service agency engaged in the administration and distribution of books for the people of a whole community. The second is that of presenting the institution to its public in an attractive and inviting manner. The public library is about the only municipal, tax-supported agency which the citizen does not feel compelled to visit by reason of some more or less unpleasant but imperative duty. The court house, the city hall, the jail, even the school, all connote to him certain obligations — the payment of taxes, the prosecution of lawsuits, compliance with official behests of one sort or another — the neglect of which entails unpleasant consequences. The public library, on the other hand, exercises no compulsions whatsoever, demands no services, exacts no penalties. It is free to be visited or to be passed by, and its uses and possibilities, for pleasure as well as for profit, are still but vaguely apprehended by many of those for whom it is established and who pay for its support. It is engaged in a constant campaign to enlarge the circle of its beneficent influence by increasing the number of its patrons, and in that cam-

paign the building occupied by this odd and altruistic piece of civic machinery plays neither a small nor an unimportant part. Its doors are open to all comers, young and old, lettered and unlettered, without price or condition, and its external aspects should proclaim in no uncertain terms the message of the spirit of hospitable and democratic service that dwells within. Our more recent public library buildings, such as those in Cleveland, Detroit and Philadelphia, all erected within the past decade, illustrate this trend in library architecture. Frowning façades, ponderous porticoes, monumental portals and mountainous staircases, calculated to impart an air of dignified remoteness to the edifice, are giving way before the deliberate desire to bring the library nearer to the people. Spacious and inviting entrances are placed at grade level, close to the public thoroughfare, with as few steps as possible between the pedestrian and the building. The elevations themselves sound a note of hospitality, their many windows often affording glimpses of busy activity within or carrying interesting exhibits of books assembled to attract the attention of the most casual observer. The new library building now in course of erection in Baltimore will have a plate glass front similar to that of a large department store and proposes to make similar use of its windows for the display of its goods.

This new type of library architecture, departing from the traditionally monumental and formal models of the past, and tending more and more towards the expression of that freedom and informality with which the American public library seeks to invest its ministrations, is employed with particular success in the design of the smaller branch library buildings, through which, in most of our larger cities

and not a few of lesser size, the local institution is serving an increasing number of its patrons, — and with which this article is chiefly concerned. In this small corner of the architectural field, which not many have had the opportunity to cultivate intensively, there are few if any traditions to hamper the ingenuity of the architect in designing his exterior, although he will find that the interior spaces, which he is to endow with an outward and visible form, present a well standardized body of essentials and principles in defense of which the librarian is ready to engage him in mortal combat. In the following paragraphs it is proposed to discuss briefly some of these principles upon the basis of the experience of the Chicago Public Library since that institution is at present occupied with an extensive building program contemplating the erection of a branch library in every ward of the city. This program is now four years old and four branches have been completed while two others are, at this writing, in progress.

A branch library is a self-contained unit of library service comprising a collection of books together with accommodations for borrowers, readers, and staff, sufficient in size and capacity to meet the book needs of a given community or the residents of a circumscribed area. Experience has shown that patrons will, with reasonable transportation facilities, find their way to the library from as far as one-and-a-half to two miles. The population within a two-mile radius may therefore be regarded as a normal constituency for a branch library, although in many parts of Chicago, where branches are still relatively few and far between, the records show that people will travel a much greater distance to avail themselves of the library service. Numerically the population within a two-mile radius will, of

course, differ widely, but may, perhaps, be estimated as anywhere from 20,000 to 60,000, and of this number the branch library may reasonably look forward to securing from twenty to forty per cent as its patrons. The records of registered book-borrowers in the Chicago branches vary from 2,500 in the smallest to 22,000 in the largest branch. Parenthetically it may be added that not a few of our local branches are admittedly inadequate, occupying small, poorly arranged quarters, in stores and other places not planned for this purpose, and that, of the total of 43, only eight are at present installed in buildings designed and erected for their use. In the planning of such buildings, the chief considerations are (a) site; (b) arrangement and allotment of interior space, and (c) the exterior elevations. The site is important both from the standpoint of accessibility and from that of prominence or *visibility*. The library should be not only easy to reach but easy to see — and *easy to look at*, — and should, therefore, establish itself somewhere near the business center of the section it seeks to serve. This does not mean, however, that a site on Main Street must be secured or that such a site is especially desirable. Frequently a humble plot of ground half a block down a side street will present a combination of all the essentials for a library site and will be available at a much more reasonable price than the business street commands. Such a location will afford reasonable freedom from the turmoils of traffic, from dust and fire hazards, and will usually ensure better natural light and air. And if not too remote from the busy corners, the library will soon contrive to make its presence known and the citizens will beat a path to its doorway.

The dimensions of the library lot should be wholly conditioned

by the size and character of the building to be erected upon it and the latter, in turn, is determined by the measure and variety of services that the branch library expects to render. The spaces to be allotted to these services and their proper and efficient relation to one another constitute the most interesting and the most important problem in the planning of the building. Within its walls provision must be made for certain definite activities. Separate reading rooms for adults and for children must be set aside and must be kept as far apart as possible in order to protect the studious adult from the din and clatter of the children's room. Smaller additional reading rooms may be considered desirable, both on the adult side, for the special student, and on the children's side, for the older juveniles. Ample shelf room for books, which in branch libraries are always on open shelves within reach of the patron, is the second principal consideration. Space for administration, for the registration of book loans and similar transactions is the third. In addition to these three primary elements it is necessary to provide office and work space, relatively small in area but not too remotely situated with reference to the main activities. Dimensions of these various areas should be determined upon the basis of the probable size of the constituency of the branch. In Chicago the conclusion has been reached after much thought and experience that the minimum practical area for each of the two main reading rooms must be 1,200 square feet which, in accordance with the usual formula allotting thirty square feet per seated reader, will provide accommodations for forty persons. Proportions of these rooms are best determined by plotting the furniture (not forgetting to allow one foot along all walls for the bookcases with which the rooms will be lined), but a

length of forty feet by a width of thirty feet may be regarded as a feasible standard. The subsidiary study rooms, offices and work rooms will, of course, take up considerably less space. The administration desk or counter requires ample room both within and around it to accommodate the long lines of borrowers waiting to be checked in and out at rush hours. The desk is usually placed directly opposite the main (and only) public entrance to the building, at a distance of ten to twelve feet from the inside door, the desk or counter itself being constructed as a rectangular enclosure with a two foot counter-top and measuring twelve to sixteen feet over all, both width and depth. With proper passage or circulating space around it, this desk will therefore require an area of approximately twenty-four to thirty feet square.

In the type of branch library here under consideration it is customary to align these three principal members — the two reading rooms and the lending or circulation space — in a row along the front of the building. This is, indeed, the typical arrangement although many interesting variations have been developed. It calls for a very wide and comparatively shallow one-story building. Two forty-foot reading rooms separated from one another by a thirty-foot circulating room, for example, require an oblong structure with an inside measurement of 110 feet. But it is from the standpoint of administration the most practical arrangement, since the staff at the central desk commands not only the exit but the activities of the reading rooms to the right and left as well. In depth, this building would need, perhaps, double the width of the front rooms, i.e. 60 to 75 feet, which would afford ample space for the lesser rooms and offices at the two ends,

besides a generous area for book storage directly behind the central desk.

The question of book capacity for branch libraries is one upon which librarians hold varying opinions, many branches depending solely upon wall shelves around the several rooms for book storage while in others the space behind the desk, sometimes extended to a greater depth than the two wings, is equipped to hold a larger book

FREDERICK H. HILD BRANCH, CHICAGO PUBLIC LIBRARY
STACK ROOM ELEVATION, OAKLEY AVE.
Pierre Blouke, Architect

stock. In Chicago the latter policy has been adopted, the conclusion having been reached that it is uneconomical to erect buildings for the service of so large a constituency as is served by most of its branches with a book capacity of less than 12,000 volumes. Several of the new branches, indeed, are equipped with shelf room for 18,000 to 24,000 volumes.

The architect must not overlook the extreme importance of proper lighting, ventilation and heating, of the arrangement of win-

dows with reference to the conservation of all possible wall space beneath them for book shelves, of a multitude of other details peculiar to the construction of library buildings which combine to make of this relatively small department of architecture a specialty that is replete with interest and affords plenty of opportunity for the application of much ingenuity and enterprise.

X
PRISON ARCHITECTURE THROUGH THE AGES

By Ralph W. Zimmerman, A. I. A.

PRISONS, with their somber and forbidding buildings and histories, have been of universal interest throughout the ages. All classes of society, from the highest to the lowest, have felt the restraining influence of prisons. History proves that no class has been exempt — even kings and emperors having been incarcerated, along with the common thief and murderer. As a wag of the Middle Ages so forcefully wrote: "It is but a step from Ermine to Vermin."

While prisons, throughout the ages, have cast their ever lengthening shadow on civilization, penology has not kept pace with mankind's rapid advance. The mere mention of the Bastile, that building of horrors around which the French Revolution centered, or of the Tower of London, with its gruesome history, known to every schoolboy, brings a tremor to the underworld. That the sciences, psychology and sanitation, are essential in a prison, seemed unknown.

Even here in America, where freedom of thought and person is an essential part of the nation's heritage from our founders, prison construction and administration have lagged. There are many prisons in the country just as they were when built, with dark narrow cells,

primitive sewage disposal, and with little, if any, attempt made to improve the mental or physical status of the inmates. Men or women sentenced to some prisons enter into a structure fifty to one hundred years old, and face living conditions practically the same as those met by unfortunates or evil-doers at the early part of the nineteenth century.

Many states have tried to improve conditions by remodeling or building new prisons (such as Illinois with its model new prison at Stateville), but often the old prison, as at Joliet, with its unsanitary conditions is still in full operation, due to the increased prison population.

In early days, prisons were used by individuals or governments, actuated by the " might is right " theory, to confine enemies, personal or political. As society became more complex, and governments more and more accountable to the people, prisons were built for keeping, as punishment, offenders against the political and social code. The horrors of prison ships, and deportation for minor offenses such as stealing a loaf of bread, are too fresh in history to require more than mention. Under present conditions, we have in a neighboring state men and women confined for life for having in their possession a small quantity of liquor. Will this era be looked upon in later years as we now look back to deportation and prison ships, when punishment was the underlying motive in prison administration and safe keeping the fundamental requirement of design and construction regardless of the hardships imposed upon the inmate?

It is only in recent years that more constructive thought has been given to other phases of penology, fully as important as, if not

more important than, security of confinement with its usual objectionable living conditions. This is perfectly natural, however, as it is the Warden's duty to keep the inmates safe during the period of confinement and his responsibility ceases when the inmate is legally released. The fact that a large majority of prisoners are eventually released to return to society, should receive the most vital consideration, as it is obvious that unless some improvement has been made in the physical and mental condition of the inmate, very little has been accomplished by the State, except in a temporary way, and that at a rather heavy expense. In many cases prisoners, after their release, are a greater menace to society than they were before they were sentenced.

Whether a released prisoner is to be an additional burden to society or a good citizen, depends largely upon the treatment he has received while under duress. To treat the prisoner with cruelty oftimes embitters him to the point where his hand is raised against all people, police officers especially.

According to a well known penologist, at least seventy per cent of the men confined in a State penitentiary could not be classified as bad, but could be segregated as weak and easily led. This large majority of prisoners are especially subject to reform, and can be returned to society improved physically and mentally if proper living conditions are provided within the prisons.

Even our best prisons are so over-crowded that it is difficult to maintain order and prevent riots, and almost impossible to provide work for the inmates, so that reclamation receives but little consideration.

While it is true that only a very small percentage of the prison

population has been able to effect an escape or offer a serious problem in safe keeping, it is equally true that this small percentage represents the most desperate element when at large, and consequently the most important prisoners to keep. It is this small group which has necessitated designing entire institutions as near escape-proof as possible. This small desperate element cannot be completely selected and isolated in escape-proof buildings. The clever criminals are the first to take advantage of any privileges and will be model prisoners for years, if necessary, in order to enter a group where restraint and supervision is lax and escape possible.

Inasmuch as the individual cell has always been considered the only safe place of confinement (the wall generally serving to protect the yard only and not being patrolled at night), prison designers have directed their energies toward the cell blocks, with complicated locking devices and tool-proof steel bars and walls, without due consideration to the effect of this type of cell on the mental and physical condition of the inmates. The effort to keep secure the few who might attempt to escape, makes the entire prison population suffer, and efforts toward reclamation are severely handicapped.

A study of the escapes from various prisons indicates, however, that it is not the design of the cell, with its steel bars, that prevents escapes, but the vigilance of the keepers, even though the prisoners are confined to their cells. Regardless of how securely the cell is constructed, escapes have been made when surveillance is relaxed.

The " inside " cell block in which the cells are steel cages with solid dividing walls, arranged in rows in the center of a building, with no connection to the outside wall or window, has been adopted

by most institutions on account of its security, yet prisoners have escaped from this type of building while under death sentence.

Experience in recent years has shown that, although escapes have been made from every type of cellhouse, the real security lies in a properly designed and guarded prison wall. It is practically impossible for the inmate to construct, secrete and use the necessary scaling equipment in the unobstructed area adjoining the wall.

The wall should be designed with observation towers not over seven hundred feet apart. There should be no buildings nearer than one hundred feet to the wall, and all openings for utilities should be properly guarded. No sewer pipe of a greater diameter than eight inches should be used, and the foundations should extend to rock or twelve feet below finished grade. The height of the wall should not be less than thirty feet at any point. While this wall is, of course, more expensive than a lower wall and requires more guards, the entire expense is returned many times in the simplified design of the buildings within the compound and the saving in guards in the buildings.

While the prisoner may escape from a cell, he is still far from freedom if he cannot scale the wall, and is subject to discipline for his attempted escape.

This new type of surrounding wall, constantly patrolled and with properly guarded entrances, has brought about a variable renaissance in the design and administration of penal institutions. For the first time in history, the Warden, with the responsibility of safe keeping, and the theorist, interested in the improvement of administration, can work together in harmony, designing the institution within the wall

in as many complete units as necessary to accommodate properly the various types of prisoners.

Secure cell blocks can be designed for discipline and for the few known desperate inmates, without contact with the rest of the institution, but even these cells need not be of the " inside " type without windows, as escape from the cell does not mean freedom, and a considerable saving in construction cost may be made.

A large majority may be housed in well-lighted, airy dormitory buildings, with or without separate rooms, and just sufficient restraint to leave evidence of unauthorized absence.

The buildings may be one or two stories high and economically constructed without window bars or complicated locking device. A fly screen over the ventilated portion of the window, fastened from the outside, offers sufficient restraint, as the most perfunctory inspection will reveal an attempted escape.

First offenders, younger inmates, and those ready for parole may be kept in cottages without any restraint.

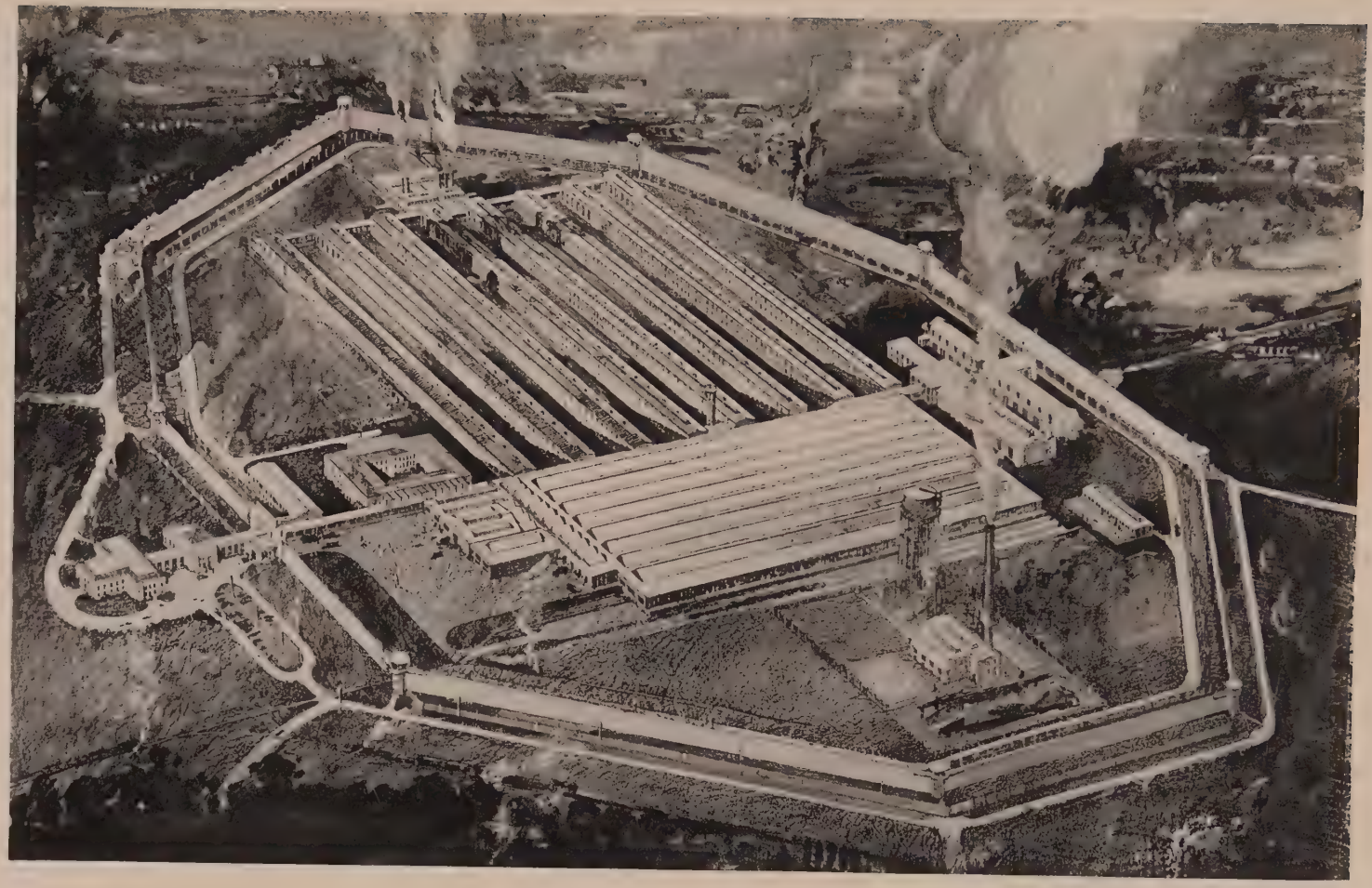
Each unit should have its own separate dining hall and workhouse, but the entire institution may be economically served by one administration, hospital, kitchen, power plant, etc. This arrangement provides a flexible plan for housing, makes reclamation and education possible, and minimizes the possibility of riot without jeopardizing the safe keeping of any inmate regardless of how he may be classified.

The New Eastern State Penitentiary at Graterford, Pennsylvania, is designed so that the inmates may be classified in eight groups with varying degrees of restraint and privileges. Each group has a

separate dining hall, exercise yard and workshop, so that they may be entirely and permanently separated from each other.

This new design, with its absence of orthodox prison atmosphere, with healthful living conditions, combined with safe keeping, offers the greatest possible opportunity for reclamation and is the latest step forward in prison architecture.

Air view of the New Eastern State Penitentiary, Graterford, Pennsylvania, showing eight two-story Cellhouses of varying degrees of restraint, each with a separate Dining Hall and directly connected to its portion of the Factory Building. The Kitchen, Bakery and Cold Storage Building at the end of the Cellhouses is connected to the Dining Halls by a service corridor. The group near the entrance is the Administration Building, Hospital and Receiving Building and Garage, Laundry and Repair Shops. At the far end of the corridor from the entrance is the School, Gymnasium and Churches. The wall is 30 feet high and encloses 62 acres.



GRATERFORD PRISON, PENNSYLVANIA
Zimmerman, Saxe & Zimmerman, Architects

PLAN OF HOTEL DIEU (PARIS) BEFORE THE FIRE OF 1772

Founded in 7th Century, Expanded and capacity greatly increased in 1198

XI
THE RISE AND GROWTH OF HOSPITALS

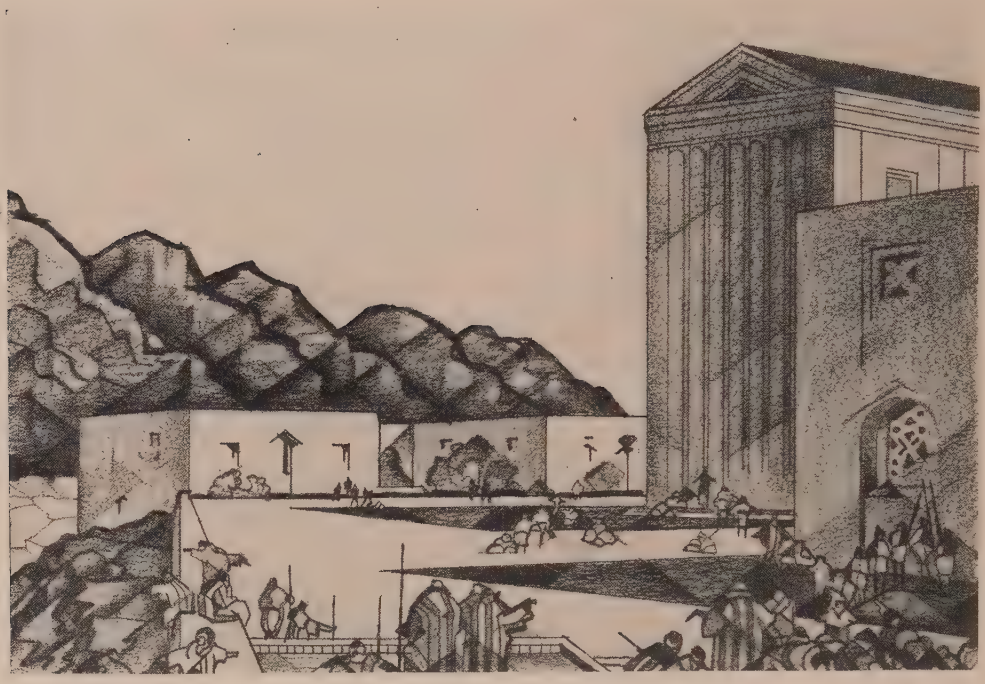
By Richard E. Schmidt, F. A. I. A.

NECESSITY for shelter and refuge for the poor sick is not as urgent in mild as it is in colder climates. Few, if any, institutions for the care of sufferers existed in Egypt, Greece, Rome and India prior to the Christian Era.

Forerunners of the hospital were built, however, in the first years of this Era. The distress and misery accompanying the great political and religious movements of the first century made such shelters a social necessity. They originated principally through the influence and under the direction of the Church; the leaders themselves, and prominent citizens, often gave themselves to the care of the sick. Constant increase in number and capacity of these primitive hospitals marked succeeding centuries.

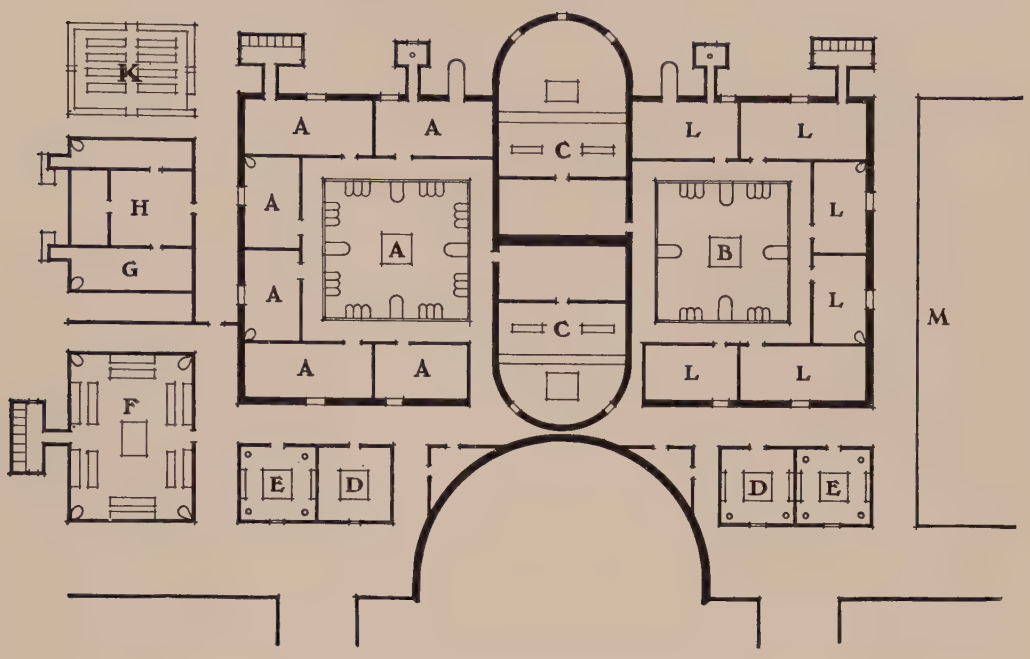
In 370 A.D., the famous Basilias, a large refuge for the wretched poor, was erected at Cäsarea, and subsequently another in Constantinople intended for 10,000 persons. Others were built throughout Europe. An excellent prototype of later hospital arrangements and disposition of parts, placed according to their uses, dimensions of rooms, segregations of functions, originated in the ex-

cellent plan of the monastery at St. Gall, which, in many of its arrangements, formed the nucleus for Benedictine Monasteries and Hospitals.



At the gates of Cäsarea, Bishop Basilius founded the institution in 346 A. D., later known as the Basilia: streets and houses surrounding a church embraced buildings for the sick and infirm wards of physicians and nurses, also workshops for the production of every need of the institution by resident craftsmen. A restoration.

The hospitals of the Middle Ages were, however, in general, dank, poorly illuminated buildings where the sick were crowded into large halls with a high death rate. These conditions continued as late as the eighteenth century. The great Hotel Dieu of Paris, in the last years of the original building's existence, often housed five thousand patients in immense halls or wards. The number of beds was no measure of the number of sick, since as many as could find space to lie were placed in a bed.



HOSPITAL QUARTERS OF THE MONASTERY
OF ST. GALL, SWITZERLAND

Planned in 820 A.D.

A-A	Hospital Wards	F.	Surgery
B.	Monks' Refectory	G.	Doctor's Room
C-C	Double Chapel	H.	Pharmacy
D-D	Kitchens for respective buildings	K.	Garden for medicinal herbs
E-E	Bath rooms	L-L	Monks' School Rooms
		M.	Cemetery

Vegetable garden, Poultry yard, Helps' Home, and Grain and Hay Storage were grouped on the right.

As late as 1788, each of the beds in Hotel Dieu was intended to hold either two or four patients. The number of sick so far exceeded the bed accommodations that the beds, in 1530, were occupied by relays of patients, and racks were provided on which the sick, whose turn it was to be out of bed, could rest(?) in the mean time. Man today has advanced, so when a hospital patient, he draws a bed all to himself.

After the destruction of a large portion of Hotel Dieu by fire in

1772, a commission was appointed to investigate the damage and to prepare recommendations for re-building. The commission recommended smaller wards, or the construction of four smaller hospitals in place of the single hospital of the same capacity as before. Many other recommendations were made from which some standards of today do not vary greatly.

Up to the early part of the nineteenth century, hospitals of solidly built blocks of buildings offered poor illumination and ventilation. It was not until 1829 that the first hospital with widely separated wings was erected, an arrangement termed the " Pavilion System." About a quarter of a century passed before this type became quite general. It continues to be used to this day in the building of large public hospitals throughout Europe. Only occasionally do large hospitals consist of an aggregation of completely separated buildings, connected by tunnels or covered passageways to convey patients from one department to another, as well as to carry food, heat, light and power.

Hospitals of separated buildings were first employed on a large scale in our Civil War. The lower death rate, lower than in any former war, in Lincoln Hospital in Washington, Mower General Hospital near Philadelphia, and other army hospitals, attracted the attention of the medical world and resulted in the adoption of many new standards for municipal and state owned institutions.

Hamburg-Eppendorf Hospital, built from 1883 to 1893; Barmbeck Hospital, Hamburg; Bispebjerg Hospital, Copenhagen, have been models of the larger hospital plan.

The preceding historical sketch, necessarily very brief, refers to

large institutions supported by government. If small private hospitals existed, little or nothing is known about them; large privately owned and operated hospitals are hardly known in Europe. Many more exist in this country where they have been brought to a high standard of design and operation.

In view of the primitiveness of the hospitals of the first half of the nineteenth century, it is not difficult to understand why hospitals were shunned. Our parents remembered the bleak white halls, wards of excessive capacities, limited sanitary equipment, noises, odors and sights of the old institutions, where hardly anything was concealed or noises restrained. In the past fifty or sixty years improvements in planning and equipment have appeared in an accelerating ratio year by year.

The architect of the modern hospital must choose between simplicity and intricacy of planning. The latter may provide an abundance of conveniences for the attending personnel which are at times necessary for the comfort of the patient. It does, however, make discipline more difficult.

Effectual and easy supervision and service is undoubtedly essential to proper care and nursing; however, it must not be so direct that the patient is annoyed and his convalescence delayed by hearing conversations or noises caused in the performance of their duties by nurses and internes.

The hospital of today has many functions and services peculiar to it, not omitting those of hotel and home. Provisions should exist for soothing entertainment to make time pass pleasantly for the patient and at the same time make every minute of his sojourn beneficial.

Primarily the hospital must provide every means for the carrying on of scientific studies of the individual in diagnosis and prognosis, treatment, surgical procedure and research for the benefit of society.

One of the most important problems in planning a hospital is circulation; that is, the simultaneous carrying on of all the functions and services without congestion or interference as noiselessly and as invisible to the patient or friends as may be possible. The relatives and friends who come to call on a patient should be able to travel from the entrance to the bedside, meeting a minimum of patients on carts being conveyed from their beds to the operating departments or surgical dressing rooms. Patients and relatives should not be obliged to pass through operating departments. Obviously, it is not practicable to parallel every corridor intended for patients and their relatives by a service corridor. These functions should be segregated as much as possible, so that food may be conveyed by means of dumb waiters from the kitchen to the various floors, almost to the bedside.

Many of the rooms required for the care and comfort of the patient service should be planned around a service corridor, or in a service unit. Wherever it is necessary to connect a service department to a public or patient corridor, a soundproof " lock " can be installed. By doing this the noises originating in the floor kitchens, surgical dressing rooms, general utility rooms, janitors' closets, flower rooms, from rubbish and dust disposal chutes, soiled linen chutes and nurses' retiring rooms can be prevented from penetrating to patients' quarters.

Since noise is one of the greatest disturbers, provision should be made for preventing the transmission of noise from elevator machines,

ventilating fans, motors, and the like. Many minds working in the development of building material and equipment have solved these things in an efficient and economic way.

Boilers, pumps, refrigerating machinery and laundries can be operated to advantage in a separate building placed at a moderate distance from the hospital proper.

There is a strong conviction today among hospital administrators that a hospital of large capacity, if many storied, is less difficult to conduct satisfactorily, and less fatiguing to the personnel than one covering more ground and having fewer stories. Elevator travel is less fatiguing than walking. Before the development of elevators, lofty hospitals were not possible and the objection to many-storied hospitals remaining with some administrators today is probably due to their recollections of the fatigue caused by climbing stairs.

Before modern electric lighting in its present efficiency was obtainable, strong daylight illumination was necessary for an operating room and the uppermost story was obviously the best location for the operating department; but with modern illuminating fixtures and systems, such departments may be situated in any story and the upper story given over to the patients where they can enjoy the cleanest air and more of the beneficial effects of sunlight.

Hospital builders always recognized the necessity of employing fire safe construction and insisted on fire resisting construction as it came into use. It is more of a necessity in a hospital than in any other kind of human abode. Non-patients can more easily escape from smoke and other danger than post operatives and the sick, who must be conveyed.

The old type of building consisting of brick walls, with wood floor and roof construction, was moderately noisy; it occurred to no one that buildings of fire resisting construction would be objectionable because of added noise.

Builders should have anticipated that most of the fire resisting materials such as clay and cement products are hard, that they would reflect and propagate sound. The immediate demand for deadening of noises in hospitals undoubtedly gave impetus to the study of sound absorbing and deadening and almost over night materials were found which do the desired thing. Materials which had heretofore been waste were converted into new products and large industries have come into being to satisfy the demand.

Soundproof doors, partitions and floors, sound absorbing plaster and other wall finishes are now available at reasonable unit costs. However, their application throughout the hospital increases the cost beyond the unit sum now believed to be reasonable per patient, and as there are many other new features equally desirable, the amount of sound absorbing material applied must be limited in the interest of economy.

In large centers the air is polluted and should be washed before delivery to rooms. Water supplied in the majority of places attacks piping, resulting in leaks soon after completion of the construction; consequently, water must be purified, filtered, aerated, and softened where found hard.

These are only a few of the things which will be required, but their cost has increased the unit costs of hospitals by a surprisingly large figure.

The hospital is in use and operation twenty-four hours continuously, week days, Sundays and holidays, as long as the doors are open; an interruption in any service is insufferable. Every piece of machinery or equipment must be in operation or ready to operate. For some there must be duplicates for emergency services.

Whether large or small, a modern hospital is a complicated machine of which the parts peculiar to it must coördinate exactly to accomplish the purpose of the whole. Life and health depend upon its proper functioning. The physicians', the patients' and the nursing staff's conceptions of an ideal hospital differ, and properly so, but since the hospital is built primarily for the patient, many compromises must be made in designing. To present the desires or ideals of the physician or the nurse in matters of planning is beyond the scope of the present article. To set out all of the wishes of the patient is impossible, but the more important ones are, that the site of the institution be distant from city and traffic noises but yet within a convenient distance and means of transportation for relatives and friends, with a pleasing view in every direction, vistas into a park, gardens for convalescent patients about the building, roof gardens, solaria and the like for such patients, in sunshine and shade, cold and warm weather.

The room or ward should be light and airy, of harmonious tints and coloring; everything of materials which can be easily and unobtrusively cleansed, liberally supplied with hot and cold water, in which all mechanisms, such as door latches and switches, operate noiselessly; surroundings soundproofed; equipped with built-in wardrobes for individual utensils; means to call attendants silently; within

a short radius of the culinary service; connections for telephone and radio head-sets for convalescents; dim shaded lighting as well as bright light for the use of the examining physician.

With human sensibilities thus ministered to, the community's civilization may be gauged.

MONTEFIORE HOSPITAL, PITTSBURGH

Schmidt, Garden & Erikson, Architects

THE UNIVERSITY OF CHICAGO CHAPEL

Bertram Grosvenor Goodhue
Bertram Grosvenor Goodhue Associates } *Architects*

XII
CHICAGO CHURCHES

By Thomas E. Tallmadge, F. A. I. A.

I SUPPOSE the first sermon ever preached in Chicago was by Père Marquette, his auditors red Indians and his temple an oak grove. Of how many thousand have been preached since and of their effect we have no record, but we can well conjecture that a goodly number of them were directed at the faithful in the praiseworthy effort to raise money for the building of churches. Of these sacred edifices we have a great number, and from the humblest of beginnings they have grown and spread forth like a tree planted by the rivers of water.

Prayers must have been uttered and songs sung in many a cabin and wigwam, but it was not until 1833 that we have the first recorded sermon — in old Fort Dearborn by Jeremiah Porter, a Presbyterian minister, and shortly after, in the same year, is recorded the erection of three " first " churches for the Baptists, the Presbyterians and the Catholics. The Methodists followed in 1835 and the Episcopalians in 1837, when was built St. James on the corner of Cass and Illinois Streets. The others were all " in the loop."

In 1838 the Methodists moved their original building to their new lot on the corner of Clark and Washington Streets, which they had purchased for $3,250.00. The lot has considerably enhanced in value and the new building is decidedly more commodious.

With the exception of St. James, which was of brick, and "Gothic" in style, these other early churches were small in size and of wood. In style they followed the architectural vernacular which historians call the Greek Revival. This is the style that followed the Colonial, and its popularity was such that it lasted from about 1820 to just before the outbreak of the Civil War. As its name implies, its ornament, moldings and other architectural features were copied with astonishing fidelity from those immortal monuments of the Periclean Age which still in unrivaled beauty crown the Acropolis in Athens. To signalize their purpose each wore a little spire, and for this reason they are often confused with Colonial or Georgian churches. The plan was simplicity itself — a large squarish room for the auditorium, and a smaller room in the rear for the Sunday school. An excellent example was the rather imposing First Baptist Church, built in 1844, which stood on the southeast corner of LaSalle and Washington Streets, and of which we have excellent photographs. Of these ancient fanes in the Greek Revival style only one remains in Chicago, though there are many throughout the state. The only survivor is the first Baptist Church, moved from its original site in 1867 and reërected on West Monroe and Morgan Streets, where it still stands, divested of its spire and of its original purpose. In fact, the Chicago of before the Fire has been almost completely obliterated.

About 1855 the architectural style suddenly changed, and much for the worse. England, largely owing to the teachings of John Ruskin and the encouragement of the Prince Consort, was in the throes of a Gothic Revival of a variety which we usually term Victorian Gothic. Owing to Ruskin's teachings it had quite as many Italian as English

features. Why, at an earlier and cruder date, we should have handled Greek architecture so much better than we did this later importation need not be explained here. Besides, it's a good deal of a mystery, but critics agree that the period between 1855 and 1880 is the Dark Age in American architecture and taste, and in architectural solecism the church, I regret to record, assumed the lead.

The churches after 1855 are vastly different from those that preceded them in other respects than style. In the first place, they were much larger; some of them would be tremendous even for today. The Sunday school was usually relegated to the basement or ground floor; a gallery surrounded the auditorium, bare of architecture but desecrated more than decorated by stenciled fresco. The woodwork and pews were of American walnut, where they still exist now almost black with age.

Stone in the better buildings and Milwaukee brick in the poorer ones entirely supplanted wood. This stone was what is known as Joliet stone. It is a chalky white limestone, very difficult to carve and invariably used with a rock face finish. Despised after the World's Fair to the point of extinction of the quarries, Joliet stone in the last three or four years has become fashionable again and in the more skillful hands of the present generation, it has come into its own as a beautiful material. The new buildings of the McCormick Theological Seminary are an excellent example of its modern use.

These were the great churches whose flaming vaults and blazing spires illuminated the skies on that tragic eighth of October, 1872. It speaks well for their solidity that the shells of many of them remained and could be used in the reconstruction. One of the most interesting

buildings in Chicago is St. James Episcopal, built in 1857, on the corner of Cass and Huron Streets. If you will examine the north and east sides of the tower, you will see the stone walls seared and calcined by that terrific heat. Another excellent example is the New England Congregational Church nearby on North Dearborn. The unfinished arches of the portal and the uncarved capitals stand as they did in the year of their erection, 1867, save where the flames have made strange decorations never intended by the architect. Unity Unitarian, Robert Collyer's church, standing nearby, was built in the same year.

The fire incinerated pretty much everything except, unfortunately, the prevailing styles of architecture. These appear to have been absolutely fireproof, for we find the churches, like other buildings, rising from their ashes in the same architectural habiliments.

However, the reign of the limestone church with its starved Gothic forms was about over. The light of a new architectural day was just below the horizon, and about 1880 occurred one of those strange and abrupt changes in architectural fashion that have ever characterized the unsmooth course of architecture in America. In church building this was not alone a total change in style, but a complete revolution in arrangement and construction.

This architectural tempest of the 1880's is especially interesting because it was engendered on our own shores and not blown from overseas, as had been all of our other architectural fancies. It happened in this way: In 1877 H. H. Richardson, the greatest architect of the day, built Trinity Church in Boston. Phillips Brooks, the most renowned and best loved divine of his generation, was its rector. Trinity was something absolutely new. Instead of the prevailing Gothic, with

its high, thin lines and pointed arches, Trinity was Romanesque — a style of low and heavy lines and round arches; instead of a long nave and narrow aisles, it was short and broad; instead of the meretricious ornament of the Victorian Gothic, in Richardson's hands, at least, the Romanesque had a freshness, a vigor and a romantic appeal far closer to the heart of America. To shorten a long story, within two or three years after the completion of Trinity, almost all churches were built in the new Romanesque mode.

This movement, known as the Romanesque Revival, extended to buildings of all kinds. In Chicago, Joliet limestone went into the discard almost over night, and new churches changed their ghostly whiteness for the ruddy blush of pressed red brick. Stone, when used, was granite like Trinity, or gray Bedford stone treated with a rough or rockface finish. The use of steel in beams, girders and trusses first appears; opera chairs often replaced pews; floors were bowled in theater fashion; walnut was replaced by golden oak; and the narrow, thin windows, with their timid diamond panes of leaded glass, gave way to huge openings filled with " picture " windows in brilliant colors, following the example of LaFarge and Tiffany.

The Sunday school was, in the meanwhile, dug out of the basement and attached close to the auditorium, often directly opening into it, and provided with little radiating classrooms from a central assembly. This device is known as the " Akron plan," and remained in vogue until about 1910. Good examples of the Romanesque Revival are the Hyde Park Presbyterian Church, and The Fourth Baptist at Ashland and West Monroe Streets.

Most unhappily, the H. H. Richardsons and the John W. Roots

were few and far between in the eighties, and Romanesque churches began to be pretty nearly as bad as their pseudo-Gothic predecessors, but in 1893 occurred another one of those architectural upheavals which punctuate with exclamation points our artistic annals, and this, needless to say, was the World's Fair.

The Romantic movement as represented by the Romanesque Revival was tried, convicted and executed on the spot. By the time the last Columbian guard had locked the gates of the Fair for good, the country had gone Classic and was headed for a new architectural journey to last until the World War. This long and prosperous period we call in architecture " Eclecticism," for, while some form of the Classic style was the favorite, other styles were used as occasion required. So in ecclesiastical architecture we find the Christian Scientists using the Classic Roman, while the Hebrews have usually chosen the Byzantine for their synagogues, and the Catholics the Baroque, especially in churches in an Italian or Polish parish. The Episcopalians, the Methodists, the Presbyterians, etc., revived the Gothic. The Georgian or Colonial style, strangely enough, was seldom used.

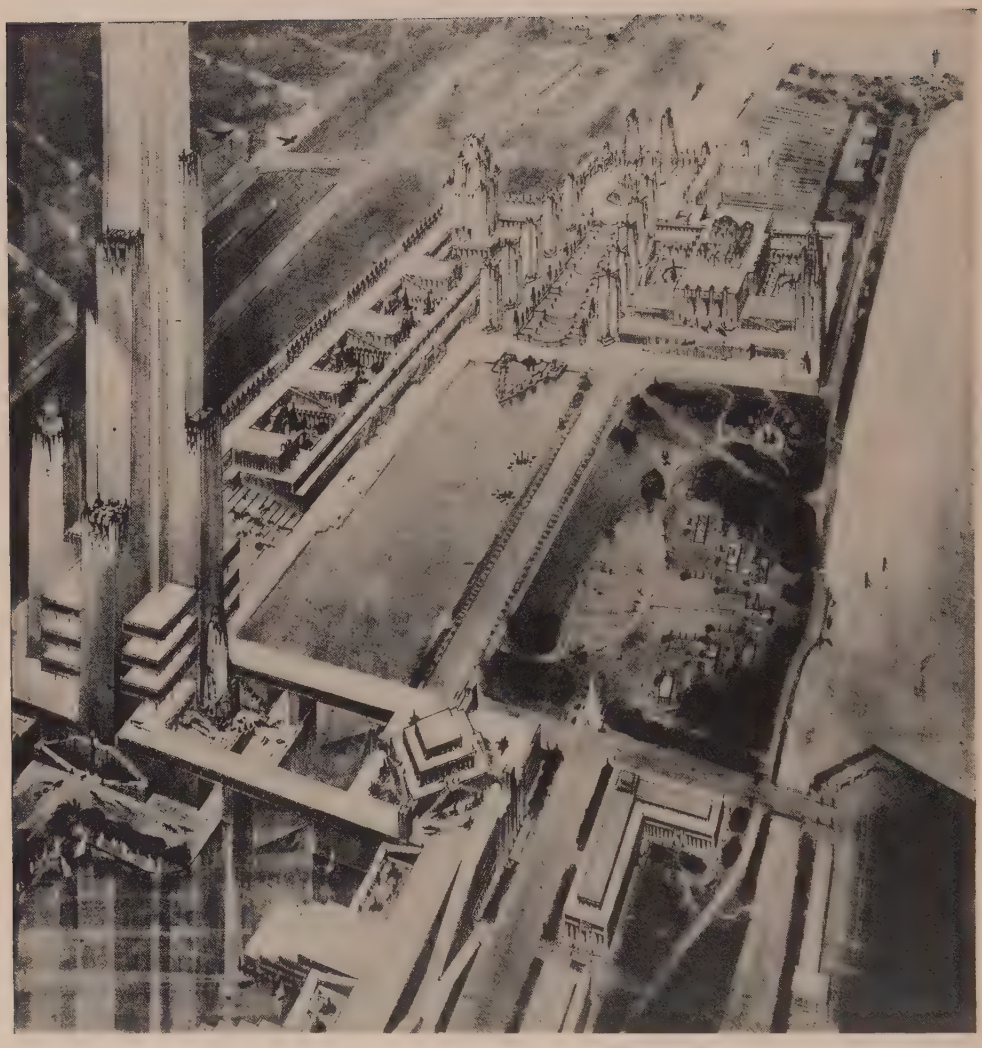
At last we find a real advance in taste and architectural knowledge. This was owing to the great increase in the number of technically trained architects and to the general revival of good taste inspired by the World's Fair. In ecclesiastical architecture the work of Cram, Goodhue & Ferguson of Boston was a strong influence. Their Gothic churches, such as St. Thomas in New York, became a model for architects everywhere. Perhaps the finest fruit of this Gothic Revival is the Fourth Presbyterian Church on Michigan Avenue, designed by Ralph Adams Cram and Howard Shaw. Other examples are St.

FIRST PRESBYTERIAN CHURCH, CHICAGO
Tallmadge & Watson, Architects

Chrysostoms on North Dearborn; St. James Methodist, Ellis and 46th Streets; the First Presbyterian, Kimbark and 64th; and numerous others, each a great advance over previous periods as evidenced in many ways. The superiority in architectural design and detail is at once apparent. The parish house, containing not only classrooms, but social and recreational facilities of every kind, is a development of the period. Stained and leaded glass had undergone a rebirth. The picture window of the eighties has given place to windows medieval in character with color, figures and ornament designed with full appreciation of the opportunities and limitations inherent in glass. In the denominational church, the ugly organ pipes and center pulpit have been abolished, and the ancient open chancel with its altar or communion table has been returned to. Throughout churches of every kind, the informal and secular has given place to the thirteenth century ideals of solemn beauty and architectural dignity; in fact, architecture is again called upon, as she was seven hundred years ago, to be one of the most important of ministries in Christian worship.

Now we are embarking on a new era. The modernistic style in architecture has solved the problem of the skyscraper. Will it invade the architecture of our churches? At first it was thought not, but the Catholic church of St. Thomas Aquinas by Barry Byrne is entirely in an original style. Even the great chapel of the University of Chicago by Bertram Goodhue and his successors, though primarily Gothic of the noblest character, is filled with modern and truly American touches, as witness the colored tile vaulting and the imaginative detail. The First Presbyterian Church, illustrated herewith, while Gothic in form, owes little of its ornament to any ancient building. A

great Methodist church in Tulsa, Oklahoma, universally admired, is as modernistic as the Palmolive Building. Architecture, even in expressing the everlasting character of the church, cannot stand still. Life and change are synonymous in the church as in the world, and surely architecture, in this its greatest opportunity, will not fail to express in the church of the future whatever there is of beauty and the spirit in the ideals of a new age.



RAYMOND HOOD'S PROJECT FOR 1933 CHICAGO WORLD'S FAIR

An informal plan of diverse elements arranged around two basins with a dominant tower element placed off center; a composition leading to intimate scale in the major elements and individuality in the buildings.

XIII
ARCHITECTURAL EXPRESSION FOR CHICAGO'S 1933 WORLD'S FAIR

By Hubert Burnham, A. I. A.

WHEN the Architectural Commission first met to consider the problem of planning the grounds and buildings for the Chicago 1933 Century of Progress Exposition, we were all deeply concerned as to the necessity of developing some clearly defined statement of principles which would govern our work.

In other words, we felt that it would be a mistake and wasted effort to commence any drafting work until we had decided on some policies and principles for the project as a whole. We were, at first, uncertain as to whether this could be done.

We commenced by very thoroughly reviewing plans and histories of the previous great expositions from data prepared for us by Dr. Albert of the Exposition Board. We also had a very clear statement of the reasons for holding the proposed Exposition in Chicago in 1933 and the intended nature of the exhibits. All this I will not repeat here, as it has been so fully and ably expressed elsewhere by Mr. Rufus C. Dawes, president of the Exposition, and by his able assistant, Dr. Allan D. Albert. Briefly, the 1933 Exposition will be the occasion of Chicago's Centennial Anniversary and it is intended

to dramatize the progress of civilization during this hundred years. The central idea will be an exposition of the service of science to mankind and of the benefit to humanity brought about by this scientific and industrial development.

This central idea or theme is certainly modern, as the development and application of science to the lives of the people has been almost entirely accomplished in the past century. Therefore, the Commission took it as one of the first principles to be followed that the arrangement and design of the Exposition should be as modern as possible. This does not mean that it must be ugly or in bad taste; on the contrary, we feel confident of producing buildings of wonderful beauty.

Architecture, especially in this country, is at the present time inspired by very great new impulses. Designers are no longer slavishly copying old forms which are not suitable to our present life or problems, but are striving to express logically and beautifully the requirements of our own times in forms that are fresh and appropriate. The Architectural Commission intends that the buildings of the Exposition shall express that spirit.

One of the principal aims of the Exposition authorities will be to make the exhibit of every industry collective instead of a monotonous repetition of competing exhibits. This tends naturally to concentration and increased interest. Also, one of the greatest drawbacks to the enjoyment of previous expositions was the factor of physical fatigue in moving about. To avoid this as much as possible and to accomplish concentration of exhibits, the architects decided that the main groups of buildings must be concentrated, rather than spread out

over immense areas. Therefore, it was decided to design the main groups in multi-story buildings of two, three and four floors; — the upper floors will open on to terraces over the floors below.

Also to avoid physical fatigue it was decided that mechanical means of transportation must be provided to all principal buildings and parts of the grounds. This transportation will be easy and pleasant and will be both vertical and horizontal by means of escalators, moving sidewalks, and perhaps monorail lines above the ground as well as surface and water transportation. Artificial light will become a part of the architectural composition. The use of water will be an important element and will be developed to the maximum.

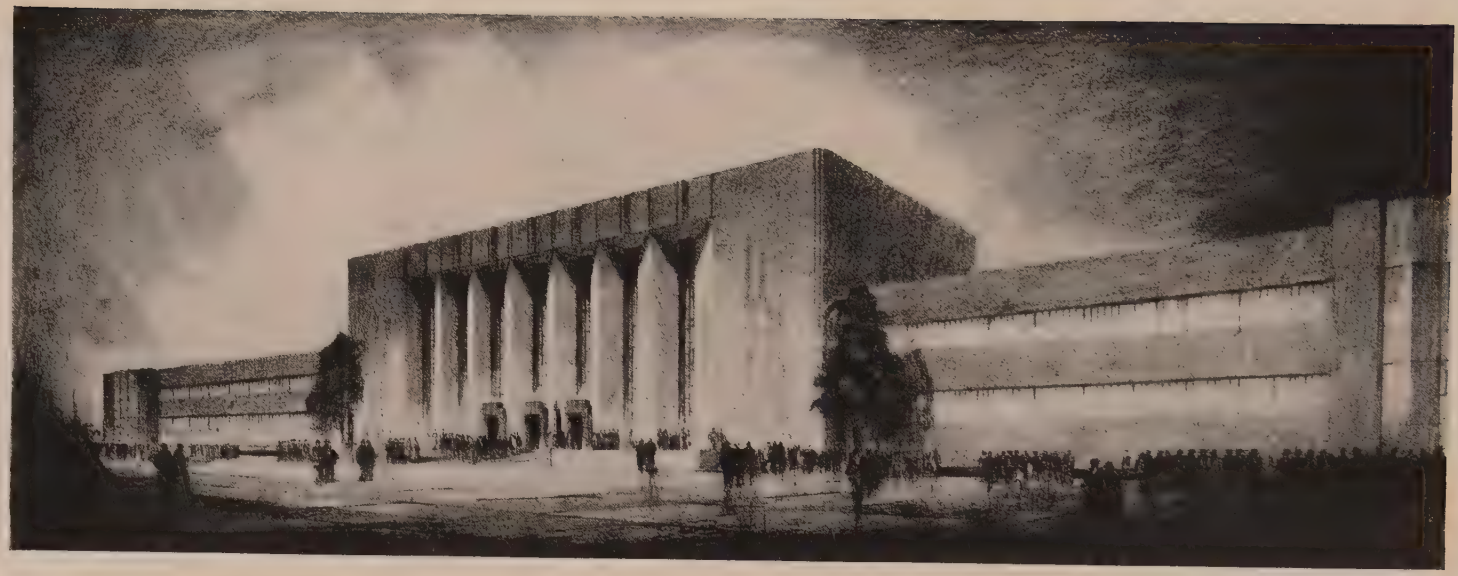
With these general principles established, the architects proceeded to consider the project more in detail as related to its site. The Exposition will be constructed on ground built in the lake east of the Illinois Central right-of-way, extending south from Roosevelt Road. This strip is long and comparatively narrow, thus presenting great difficulties in accomplishing the concentration of buildings which is desired. On one side of this strip of land is the lake and on the other is the railroad and a part of the city which presents a rather ugly and unpleasant appearance. Therefore, the plan for the buildings has been so arranged that the main group will constitute almost a continuous wall towards the west, and will be terraced up to a high point on that side — thus shutting off the view in that direction. But toward the lake there will be wide openings and lower buildings. On the top of the buildings along the west side there will be an important line of mechanical transportation reached by frequent escalators from the grounds.

Entrances will be distributed along the entire west side of the grounds, making it easy of access from any direction, although important and monumental entrances will be featured near Sixteenth Street at the north and at Twenty-third and Thirty-first Streets.

Many plans for the general scheme were presented at the meetings of the Commission and many changes and modifications were made in each. From the very start the members of the Commission agreed to work together instead of in any spirit of competition among themselves. Any ideas that any member might develop were freely used and discussed by all. Finally the different schemes resolved themselves approximately into two arrangements.

These two arrangements were quite similar in their disposition of the main elements of the composition — but were very dissimilar in the spirit and detail in which they would be developed and completed. One called for a very formal and symmetrical composition which would necessitate all parts being in balance with other parts and would necessitate the use of approximately the same forms and details throughout the main group. The other scheme called for an informal and dissymmetrical composition which would allow of a great variety of forms and detail. It was argued that this dissymmetrical composition would allow many individual designers to work on its component parts and allow each one freedom to a large extent to develop the architectural treatment as his fancy dictated. This would undoubtedly make for greater interest throughout the buildings, and also would probably result in fresher and more modern design which would be of greater interest to the visitors.

Finally the Commission decided to adopt the scheme involving a



ADMINISTRATION BUILDING FOR 1933 CHICAGO WORLD'S FAIR
Edward H. Bennett, Hubert Burnham, John A. Holabird, Architects

spirit of informality and dissymmetry. The general scheme for the grounds is being developed along those lines.

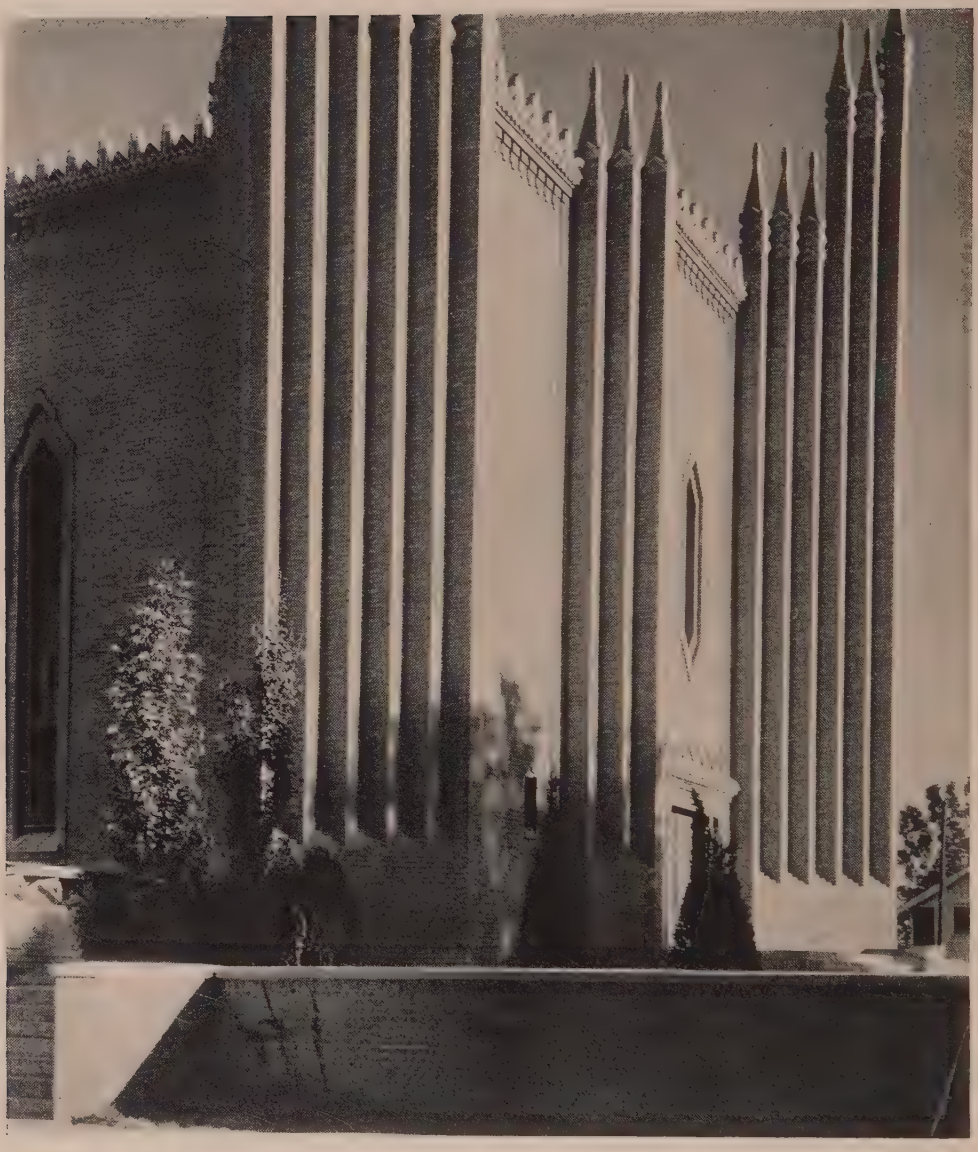
The visitors to this Exposition will undoubtedly be far greater in number than in any previous one and on certain days there will be a million or more people inside the gates. This means that tremendous areas must be arranged in the nature of an amphitheater so that all may see the shows which will be staged, such as pageants, water carnivals, fireworks displays, etc. To accomplish this it is intended that the buildings themselves will be part of the amphitheater arrangement, so that all levels and terraces can be filled with people who will all see the pageants. Such vast crowds of people will in themselves present a colorful and interesting spectacle.

The location of the Exposition presents an unusual opportunity for the utilization of water — both for transportation and for decorative effects. There will be the open lake along one side of the grounds and through the grounds there will be lagoons and basins. Water will be utilized extensively for fountains, cascades, reflecting pools, etc., and it is planned to carry these waterways even through the buildings themselves and under the terraces, so that a visitor may float through the grounds and buildings if he so desires.

Astonishing developments have been accomplished in artificial lighting in recent years. By the use of water in combination with artificial light, effects will be produced which will amaze and delight even the blasé city dwellers of today. Artificial light will play a prominent part in the decorative effect by day as well as by night. It is possible to change even the apparent forms of the buildings themselves by artificial lighting, and, of course, their color and texture can

so be changed in infinite variety. Thus it is possible to present an ever-changing and beautiful picture to the visitor.

All this and more the Architectural Commission hopes to accomplish. The Commission realizes the tremendous responsibility placed upon its shoulders. It also realizes the great opportunity to accomplish a result which will not only be a great success as an Exposition, but will also be a step forward in the development of artistic expression and an inspiration for future generations.



CHURCH OF THE CHRIST KING, TULSA, OKLAHOMA
Barry Byrne, Architect

XIV
DISTINCTION IN BRICK ARCHITECTURE

By Barry Byrne, Architect

THE newly awakened interest in a more vital architecture is one of the phenomena of our time. We are recovering from the historic period phase of our artistic existence. With its passing has gone, we hope never to return, that quaint absorption in antiquity and in the department store reproductions of antiquity, which for so long occupied people's minds. In its place has arisen a healthier interest in architecture and architectural decoration, as matters of artistic form, independent of relationship to the old styles of architecture.

With this there has appeared an accompanying interest in the use of the various building materials in a decorative way. This, in the form it is taking, is peculiarly modern and has undoubtedly been stimulated by the extraordinary increase of new materials and of new types of old materials, due to machine processes in manufacture.

As a result of this manufacturing development, new metals, such as aluminum, monel and chrome metal of different forms, have come into general use. These are rapidly being adapted for decorative purposes and this fact seems to have reacted on other materials, such as ply-wood, which, in richly grained wood veneers, has opened up

fresh decorative possibilities to designers. It is interesting in this connection to recall that Mr. Frank Lloyd Wright, in his " Art and Craft of the Machine," written some thirty years ago, developed this idea of the use of machine products for artistic purposes. In this, as in many other instances, Mr. Wright has been the prophet of modern art and in his work as well as in his teaching has anticipated the best of it.

This tendency towards the employment of materials for their special beauty in building design and decoration has momentary interest in view of the subject of this article, Distinction in Brickwork. As brick is a very ancient material, distinction in its use implies that this use be of a new and vital kind. Certainly the design of brick building in the old manners, such as that of North Germany, or of Romanesque Italy, would give little reason for remark. So we have a very old material and the problem posed for us is its employment in a new and vital way to achieve that desired end, Distinction in Brickwork.

Brickwork should be of particular interest to us because ours is a brick-producing country. It is a building material that is native to us in its base material, clay, and its manufacture has developed into one of our great industries. Brick is a permanent building material, its surface is impervious to moisture and its range of color and surface textures permit the possibility of variety in buildings where it is used. These qualities, and the fact that it is an inexpensive material for building purposes, have warranted its popularity and great use.

With this popularity, unfortunately, there has been slight originality and freshness in the design of brick buildings. While we are the greatest producers and users of brick in the world, we have been backward in the intelligent, artistic use of the material. Our imagination

seems to have terminated with the manufacture of brick and the sales results.

Too many of our brick buildings could be of stone, concrete or terra cotta without change in the design. This is an initial error, and if we are to understand what constitutes distinction in brickwork, we must take, as a primary fact, the idea that the design of a brick building should be radically different from that of a building of any other material. In what, then, should the difference consist?

When we examine the individual brick, we find it rectangular in shape, hard in body, the edges of definite machine-made character, and surfaces rough or smooth. This small piece of baked clay is the unit, which, used in multiplicity, makes up the walls and piers of a brick building. This individual brick is the primary fact, and consideration of its special character is a necessary preliminary to designing a brick building. The individual brick determines the proportion of the parts of the building; it is the unit of scale as well as of construction.

Proportion in a building is the right relation of parts to one another and to the whole. In a brick building the parts are, first, the single brick and, second, the windows, doors and piers of the building. Windows, doors, piers, plain surfaces and ornamental details are proportioned to the unit of the single brick.

Distinction in brickwork results from the right use of brick. It is a machine-pressed, hard-burned, clay product; stone is a quarried, cut material; concrete is a monolithic, cast stone and cement mixture, which hardens with time; terra cotta is modeled baked clay, lighter and softer than brick. Buildings in any one of these materials should

have a character in conformity with it. As an instance, a stone building, being of a cut material, should have all the appearance of being of stone. The forms of its parts should appear to be cut forms and should be different from those of a concrete building. Concrete, being of a plastic consistency in its initial state, the design of a building constructed of it should preserve and intensify the feeling of plasticity of the forms merging into one another.

These thoughts on other materials are intended to emphasize my meaning with reference to the best use of brick. Materials for building purposes, whether they are the most precious, or the simplest, have their own character and beauty. As a matter of fact, the beauty of a material is secondary to the beauty of the way in which it is used. To create beauty in a simple material such as brick, brings into play the art of the designing architect, and in the result is not only the pleasing character of the initial material, but the imagination of the architect who has devised interesting forms in it.

All materials have their limitations and these limitations should be implicitly respected. To force a material, that is to do things in it that are unnatural to it, is to destroy it for artistic architectural purposes. Initially what is necessary is respect for the material and the honest use of it. With this as a basis, imagination in design will determine the degree of interest embodied in the result. In any event, with honesty, distinction is a possibility, and without honesty there is no such possibility.

The illustration which accompanies this essay shows the contrasting use of two of the materials previously discussed: brick and terra cotta. The general form of brickwork, as shown in the vertical

shafts, is hard and angular as befits the hardness and angularity of the brick. The terra cotta of the cornice and pinnacles, designed in collaboration with Alfonso Iannelli, is quite evidently a modeled material. Its surfaces are more sensitive, its outline more varied. While the dominant vertical motif which is used in the brickwork is repeated in the terra cotta, in the latter material the character has been changed to make it suitable for modeling.

Architecture is the fine art of construction and the architect's purpose is to form construction in beautiful ways. Buildings become beautiful to the degree that they are honest, not only in literal ways, but in the more subtle matter of the suitability of the architectural forms to material and construction. Distinction in brick architecture is achieved by the simplicity and directness with which the bricks are used in the design of a building. As a test, it can be said that where a brick building produces on the mind of the spectator a consciousness of the individual bricks, both in plain areas and in ornamental detail, and yet gives a sense of the harmonious unity of the total, such a building possesses beauty and — with beauty — architectural distinction.

TOWER HOMES — CHICAGO
Henry K. Holsman, Architect

XV
THOUGHTS ON COÖPERATIVE APARTMENTS

By Henry K. Holsman, F. A. I. A.

THE Pueblos of the American Indian are said to be the oldest coöperative apartment buildings in the world. The Pueblo at Taos, New Mexico, is five stories high and accommodates more than fifty families. Its age runs far back of all available records. It is a true coöperative apartment in that each dwelling belongs to a family while the whole building belongs to the tribe. It resembles the modern American coöperative apartment building in principle in that it is economical, affords mutual protection for all, with privacy for each family, and promotes coöperative effort and community life. The ancient Pueblo, however, is but little more than a group of artificial caves placed side by side and over and under other similar caves serving as private homes for the Indian families.

Coöperative home ownership has been practiced in France, Italy, Denmark and other European countries for several centuries. But in America, until quite recently, there being plenty of space, single-family houses arranged in groups, villages, and towns have served the community or coöperative needs of home owners.

The one family home and the influence of home life in the development of society probably dates from the age of the cave dwell-

ers, but caves being a natural product were probably not multiple family dwelling places and were not arranged so as to promote the finer coöperative or social feelings necessary for the evolution of modern organized society, the state or nation.

To be such a home the arrangement of the rooms or spaces must be such as to foster privacy and individuality within the family and encourage or produce the pleasing emotions of family relations. Conjugality and fraternity, health and character fit for the advancement of a stable society and other amenities of civilization have their roots in the home and still grow out of home life and the relations of homes to each other. The art of living well, as an individual, and the art of living as a community, state or nation depends on the state of the art of making a home.

The Pueblo type of primitive coöperative home is not without Art and must have had great influence through the ages in fostering the fine community feeling and peaceful disposition of the occupants as well as the comparatively high standard of industrial art displayed in the vases, jars, baskets and blankets of the Pueblo Indians.

The Taos Pueblo stands high on the Mesa with a dignity of set-back composition not unlike the modern set-back architecture of some of the new modernistic buildings of New York City. The picturesque arrangement of rooms and terraced roofs indicates that it must have been designed by some ancient Indian artist of no mean ability. Just as all homes worthy the name are an evolvement of the artists of the race so the Pueblo thereby becomes a true and lasting home. The artists have always been called upon to show us how to dress well, how to act well, and how to live well and beautifully.

It is a singular fact that the American Coöperative apartment began some thirty years ago through the efforts of a Chicago artist who, having moved to New York City and being unable to find a suitable studio in which to work, set about to build one. Being mindful of the inspiration and strength derived from association and coöperation

INDIAN PUEBLO AT TAOS, NEW MEXICO
Oldest American Coöperative Apartment building

with other artists, he conceived the idea of building a coöperative studio apartment building of several residential studios, selling all but one to other painters and sculptors and, by applying his profits, get one for himself.

Real estate agents and builders discouraged him: — " they could not be sold " — " people only rented apartments." " No one would or could buy apartments." While the State provided means for

acquiring title to a single-family house and lot by deed, no method had been evolved for the ownership of a part of a building and a part of the lot on which it must stand.

The artist's idea as usual seemed beautiful but impractical. But a beautiful plan beautifully presented has the power to thrill the beholder and to be desired and realized, and just as all great advancements in ethics, religion or the arts are started by the *visionary* and realized by the *practical,* so this artist's dream became real. The studio apartments were built. Thus coöperative apartments became the successful solution of the city home problem for successful, discriminating families.

Philosophy says, " Man's progress depends on his innate hatred of amounting to nothing." " His desire to be something makes him do almost anything to attract attention or commendation." Nothing is more commendable than to own a good home. Home owners " amount to something " in the community, state, and nation because these are concurrent extensions of the home. Hence home owners enjoy more social and financial credit than the more transient renters of other people's property.

Moreover, home in its broad sense has a beneficent influence on every man, woman and child within its sphere. Its quality does not affect the owner alone, but also those with whom he comes in contact. A comfortable worthy home will influence his daily attitude toward others and determine his actions, his character and his reputation to a marked degree.

The rooms of a home should be so designed, so artistically related and proportioned, that they not only serve the requirements

of family life with economy of movement, but that they produce pleasing emotions to all who enter or live in them; they should make the occupant or the guest " feel at home."

Rented flats can hardly fulfill these requirements adequately, but in rapidly growing cities residence congestion makes apartment buildings inevitable. As land and building costs go higher rents go higher too and families keep shifting about. Such makeshift homes cannot adequately fulfill the fundamental requirements of American life or promote the spiritual values necessary for propagating the kind of freedom, frugality and fraternity upon which American democracy depends.

Having in mind the terrible evils and hardships of landlordism quite universal in old Europe, our forefathers tried to guard against gross landlordism in America by Constitutional provisions, yet many large cities are fast becoming the landlord's community. " In 227 representative cities in 1921 only 58% of the population lived in one-family houses. In 1928 only 35% were so housed." The 23% represented by the difference between these figures had doubtless moved into hotels and apartments during the intervening seven years.

The landlord capitalizes the delusion on the part of the renter that it is more economical to rent than buy, and thereby makes a profit and gradually acquires the best land. The renter buys the property on margins without realizing it and never cashes in on his purchase. Both the renter and the landlord are speculators, but the landlord wins. Figures compiled show that the renter pays all interest, taxes and insurance, pays for waste in vacancies, needless repairs and redecorating due to indifference and shifting, and actually pays for

the property in the course of ten to fifteen years, while the ownership and the " unearned increment " does not go to the payer but remains with the landlord.

Look at the picture from the positive side: " If the flat dweller buys a properly priced coöperative apartment, he finds the yearly maintenance charge to be about one half the commercial rent value of similar rented apartments, and if he charges himself interest on the investment and adds it to the maintenance, he can still show a saving of 40% per annum over renting — which means that in seven to ten years in the average coöperative apartment he has paid for his apartment home out of savings in rent," while the spiritual values accruing to the family are his bonus, and the " unearned increment " belongs to him, not the landlord.

Thus it will be seen that where high land values and city congestion make one-family homes economically impractical, multiple family homes under coöperative ownership become very desirable. Under such circumstances coöperative apartment buildings serve society better than single-family homes in many important respects.

Since all buildings are to be seen by society, society has the right to demand that they be beautiful, safe and healthful, and social economy demands that they be neither wasteful of material or space nor ill suited to their purpose. Coöperative buildings must be built better than speculative buildings because the occupants take a vital interest. They must be designed by competent architects, engineers, and financiers. Coöperative apartments for families of moderate means can comply with such requirements much more adequately than single-family dwellings. Multiple dwellings can afford fireproof con-

struction, good locations and good design by dividing the extra cost of these desirable qualities between the several units on a wholesale productive basis.

Many families refrain from ownership of a single-family home because its very permanence seems irksome and the sale and transfer difficulties are cumbersome and expensive in case a change in location becomes necessary, but a coöperative home ownership transfer may be made as quickly, easily and inexpensively as a lease and that hindrance to home ownership is thereby overcome by coöperation.

Some business men expose their families to the inconvenience, extravagances and insecurity of rented homes unworthy of them rather than own single-family real estate and thus expose a part of their assets, but just as a prudent business man puts private properties and insurance policies in trust with a trust company to make conservation safe for his beneficiaries, so coöperative apartment homes may be placed in trust so as to make ownership take on the character and safety of deposited personal property.

Some men refrain from giving their families more or less permanent homes under the delusion that they want to be free to move their families about from place to place, unmindful of the fact that to continually up-root and transplant the delicate amenities of home contentment and community friendships and attachments, especially of the younger members, is a serious hardship and gives teachers, neurologists and psychiatrists no little concern.

If American conditions are such that the urban population is obliged by economical or other forces to go into multiple dwellings, the coöperative idea started thirty years ago by our friend, the artist,

may yet be the means of saving the situation and preserving a respectable semblance of the American private home.

The self respecting, home loving substantial citizens are rapidly building coöperative apartments. The wise business man knows that American real estate is the best if not the only real property. To force American citizens to pay rent, or cover charge, for the bit of earth they use in flimsy buildings is uneconomical, unstable and so unnatural as to be a baneful influence on their character and disposition, tending to promote indifference toward society and the state, and carelessness regarding the source of all their benefits.

Everyone knows that shifting tenants and absentee landlords take much less interest in community affairs and local and national politics than home owners. Flat renters will actually vote for bond issues to be wasted by corrupt or careless officials they also carelessly elected, under the delusion that the landlords and owners of the property must pay the taxes, not realizing that renters and users pay all property taxes. A democracy of only landlords and tenants is almost illogical, and the nearer the City or State comes to such a condition the nearer it comes to turmoil and disintegration.

Coöperative home ownership then is not only an economical necessity, but a moral and political benefit. Coöperative apartment homes are growing in popularity among all classes of urban society because they embody fundamentals in harmony with American conditions and ideals.

XVI
A NEW ERA DAWNS IN HOUSING

By Eugene H. Klaber, A. I. A.

HOUSING is the science of creating, through planning, a physical environment in which men can realize to the highest possible degree a coördinated social life. As such it concerns itself with regional planning, town planning, zoning, transportation, and architecture. It is not merely the planning of the shell of wood, stone or brick in which a family lives.

Defined in these terms, housing is just beginning to exist in Chicago. In the past the entire growth of the city has been left to individual initiative, a most necessary element, but one which unguided leads to chaos. City growth must be directed by large scale planning, otherwise it is a series of small disjointed operations without aim or end. Nearly all American cities suffer from planless growth. In their layout, no thought has been given to the eventual city form, no restriction made of the uses allowed in a district, no consideration of the number of inhabitants beyond which a city becomes congested and the advantages of proximity are over-balanced by excessive cost of living. Not even topography has been considered. A rectangular grillage of highways has been laid out regardless of whether or not it fits the terrain. All these elements have had their share in creating the problem of housing.

Every branch of human endeavor is being organized on an increasingly large scale; the small producer is tending to disappear. The economic waste of small operation is being eliminated. Building of homes and the creation of their environment have been one of the last fields of activity to react to this movement. We now realize that past methods are archaic. We are beginning to think, not in terms of houses, but of Housing. The movement has already begun.

In the last two years Chicago has witnessed two attempts to approach the question of housing in a broad manner: the Marshall Field Garden Apartments on the north side, and Michigan Boulevard Gardens on the south side.

Of course, the ideal program is to start with the undeveloped ground and develop a city plan. This is the method followed at Radburn, New Jersey, a new town being built by the City Housing Corporation of New York. In Radburn we find a definite striving for an open town plan. It may well be asked how far such open development is possible in an urban center where the city plan is rigidly fixed. Are we not condemned in Chicago by the layout of our street system, and by the high cost of land, to accept what we find: individual houses jammed together and apartment buildings with narrow light courts where the outlook is limited by a brick wall ten feet away, whence through the window you get the odor of your neighbor's cooking? True, we cannot plan as freely as on undeveloped ground, but with all its limitations, city property may share the new spirit of planned development of housing. To accomplish this, the same methods must be adopted: planning on a large scale and for a long time. Only by the development of large plots of ground as a unit can we enter the path

MICHIGAN BOULEVARD GARDENS, CHICAGO
Klaber & Grunsfeld, Architects

of modern housing development. Worn-out speculative methods are of no avail. To build block after block of apartment buildings, each placed on a small plot, with the idea of selling them as separate ownerships, is merely repeating the mistakes of the past.

This was one of the underlying thoughts in the development of Michigan Boulevard Gardens. A project of such magnitude could not be successfully conceived in terms of the past. An entire block, 342 ft. by 593 ft., was secured for the project. On a terrain of this size it was possible to take advantage of the depth of the property. A flexibility of layout was made possible, far greater than had the project consisted of a string of small units, set side by side, each hampered by its rear and side lot lines. Just as in Radburn, the thought was not to crowd the property, but to leave a maximum of open space, consistent with a proper return on the money invested.

The result of this approach to the problem astonished even the most sanguine. With property facing a principal boulevard and a main cross street, with several buildings to be paid for and then demolished to make way for the project, the land cost was in excess of what may be encountered in outlying or run down sections of Chicago. Nevertheless, it was possible, by careful and large scale planning, and with a rental no greater than those in the immediate neighborhood in old buildings, to accomplish these extraordinary results: a land coverage of less than 40 per cent; fireproof construction throughout, insuring low maintenance cost and slow depreciation; no courtyard less than 77 feet in least dimension; a vast central garden over two acres in area, with a playground for little children; apartments equipped with every modern device, including refrigeration furnished the tenant at

$1.00 per month; a home center in which people are proud to live and which therefore has a permanent value; and last, but not least, a commercially successful venture, which, if the present is a promise of the future, will give the owner a reasonable return on the money invested.

The success of this project points to the possibility of a new era in Chicago housing, an era of rehabilitation of those vast districts lying within radii of one and four miles from the loop. This zone is covered with thousands of antiquated buildings, some of them wooden shanties. Their day is past, and they would long ago have disappeared had there been any curb on the indefinite expansion of the city across the prairies. As it is, the city has moved on like a disorderly nomad, leaving its last camping place littered with the remains of last night's supper. And yet, this zone is far more convenient to the city than outlying sections. From it, the travel distance outward to the industrial plants, and inward to the loop, is comparatively short. Here lies Chicago's opportunity for better housing.

But if anything is to be done, it must be done in the spirit of modern housing. We must first have a complete conception of the eventual development. It would be fruitless to start such a development on too small a scale, because, however desirable in itself, no housing scheme would be a success if it were isolated in the midst of a vast run down territory. The development must be big enough to create a neighborhood. When the ground for development is chosen it will not suffice merely to draw plans for buildings and let contracts. Intensive study must first be made of the makeup of population, wages, rentals that can be afforded, and the needs and habits of different racial

groups. Methods of financing must be devised. From this point on, the architect's problem becomes one of planning, that is to say, layouts must be studied, both from the point of view of economy and amenity. Special study must be given to plan efficiency and the economical use of materials. New materials are constantly being produced, some of which could well be incorporated in large projects with measurable savings.

Chicago is justly proud of its lake front, and of its wonderful park and boulevard system. They are the expression of an indomitable will to accomplishment in spite of every obstacle. But what of the intervening spaces; can the city postpone indefinitely any attempt to transform these backward regions into residential sections of which we may be equally proud? Sections in which families of small means may live with the hope that the abolition of the slum will open a door to a new and better life for themselves and their children. Every great metropolitan city in Europe and America is faced with the same problem. If the cities of Germany can tackle the problem courageously and effectively after a staggering postwar depression, surely Chicago with its prosperity and bright future is armed for the task. President Hoover has urged that as far as possible in the present period of business depression, public work and other work not devoted to the manufacture of goods, be undertaken. The object of this suggestion is to reduce unemployment and through increase in consumption demand, to stabilize business. The city of Chicago has not the power to engage in housing construction projects, but it is entirely possible for private capital to initiate such schemes, and with careful study of planning and construction methods they can be made to return a rea-

sonable rate of interest on the money invested. Projects of this kind would be of enormous value at just such periods of depression when, despite a very small percentage of vacancies (recently reported to be 4.7 per cent) building operations under private initiative are at a standstill. By so doing, a vast benefit would accrue to labor and business, and besides averting calamity to thousands, the city would, at each such occasion, be enriched in the health and welfare of its citizens.

It may be said that any such development is beyond the realm of possibility. We do not believe that this is the case. Chicago has repeatedly dreamt big dreams that were said to be impossible. It has made them realities, and can do it again.

THE MALL—CENTRAL AREA, WASHINGTON, D. C.

XVII
THE LANDSCAPE SETTING OF BUILDINGS

By Jacob L. Crane, Jr., A. S. L. A.

MODERN conditions are vitally changing the characteristic landscape setting of our buildings. Higher business structures demand more street space; hence such developments as North Michigan Avenue and Wacker Drive. To secure the fullest advantage for advertising purposes such buildings seek commanding positions where they can be seen down long street vistas, for example the Tribune, the Wrigley, and 333. There is an increasing demand for separation of pedestrian and wheel traffic, which again affects the location and arrangement of business buildings. Even industries now give consideration to their setting for the sake of appearance, advertising value, to secure clean, quiet surroundings, and to provide parking space.

With individual dwelling houses there is a tendency to invert the old plan of making the front yard the principal landscape feature, and instead to utilize the "back yard" for garden and playground space and to put the service entrance of the house toward the street. Along main traffic arteries it has become essential to set the houses some distance back from the roadways to permit screening against the noise, dirt, and hazard of automobiles. The same influences are

affecting apartment house arrangement, and the better apartment house groups are now providing interior or back yard courts, playgrounds, and garden areas.

In spite of the changes resulting from utilitarian and business considerations, an old fatal error is still common. No building, regardless of how handsome it may be in architectural design, can be effective without a reasonable amount of land for its setting and to give views toward it. This applies to all buildings from the largest to the smallest. The other day I drove with a banker who was looking at a number of different small houses on which mortgages had been requested. As between two buildings of identical value apart from the grounds, he made notations to allow a 50% greater mortgage on the house with a lot of adequate size and a nicely landscaped yard, and a lesser mortgage on the crowded, barren property. This seemed to me a real test of the actual monetary value of home landscaping.

With larger, more important buildings there are any number of examples to illustrate the difference between a good and a poor landscape setting. Such compositions as the palace at Versailles, the Capitol at Washington, or the Lincoln Memorial there, are certainly dependent for their effectiveness upon the landscape arrangement. Contrast the crowded setting of the Chicago City Hall with a group such as the buildings at St. Mary's of the Lake, where adequate space is provided, even though not perfectly designed, and recognition is given to landscape relationships; or the handsome downtown Northwestern University group, which cannot be adequately seen from any land point of view, with the open arrangement of the Northwestern buildings in Evanston; or the Sainte Chapelle chapel, a reproduction

of the lovely Paris Sainte Chapelle, crowded in on North Rush Street, with the new well-set chapel at University of Chicago; or the Daily News Building and Plaza with the Methodist Temple; or any of the great apartment buildings set back from the street or across from a park with those built up against the street line close to the roadway. When some building in the loop is wrecked to make room for a new structure, it is startling to see that, while the space is left open during the construction of new foundations, the entire neighborhood takes on a greatly enhanced interest, and that individual buildings show up in a way that is not possible on the crowded downtown streets.

This much to emphasize the first principle of the landscape setting for buildings, namely, that an adequate amount of ground and a setting in relationship to other structures and the street system, are essential to the successful treatment of any building.

The other principles of landscape setting are few and simple, but each is necessary to a successful result. First, there are the utilitarian problems to be met; such matters as parking space, driveways, entrances, and service courts. The second is the principle that the size, shape, and treatment of the setting should be in keeping with the character and use of the building. The unorganized arrangement of many college campuses illustrates bad proportioning of ground, bad arrangement of buildings in relationship to each other, and poor landscape design. The Daily News Plaza is a good example of an excellent architectural plaza treatment. Modernistic buildings require modernistic landscapes and the imposition of soft shrubbery and round canna beds in front of a modern building may injure its effect. The arrangement of landscape in the setting for any building or any

group should and can lead up to and become a part of the building composition and also form a transition between the building and the street. Plans for the Chicago Century of Progress Exposition (1933 World's Fair) seem to be one of the best examples in the world up to this time of a large scale modernistic development in which the modern style buildings, the streets, plazas, water basins, approaches, and settings are all worked out in one consistent modernistic composition of extraordinary interest and beauty.

It seems unnecessary to mention scale and color in the design of a landscape setting, but the fact is that the simplest principles are frequently violated, not only by owners or promoters, but also by architects themselves.

Finally, after the controlling principles have been carefully applied, any landscape setting should be interesting and, if possible, beautiful within itself. Grant Park, lying as a great forecourt in front of the buildings along Michigan Avenue is a matter of comment by everyone sufficiently aware of this kind of thing to observe it. It may be regretted that Grant Park more and more resembles a European Renaissance work, but nevertheless it is one of the most interesting features of this kind in the country, and it offers an excellent illustration of the value of landscape setting for buildings which would otherwise almost entirely lose their effectiveness.

The City of Washington is set up as the best example in America of a good city plan. But Washington differs from other American cities in only two essentials, namely, that it has an organized system of diagonal streets; and that it is being developed to give each important building and monument an adequate landscape setting and an effec-

tive relationship to the whole arrangement and to its immediate surroundings. In other words, the beauty and dignity of Washington are largely matters of landscape setting for its buildings.

Soon we will all be viewing our cities from the air, and for the first time many of us will realize that typical American city development has been almost universally a crowding of buildings as thickly as possible with no thought whatever to their landscape setting and visual effect. It seems certain that this new view of our towns will greatly stimulate interest in city planning and in the appropriate, adequate arrangement and setting of structures.

There are many details in the consideration of any landscape and each problem is an individual one to be treated on its own merits. When the common practice is to devote more ground to the settings of buildings, when this ground is developed appropriately and interestingly in each case, and when city streets, squares, station entrances, etc., are designed in every detail for their relationship to the buildings and for an appropriate and beautiful effect, our city landscape will have become infinitely richer and more satisfying. Without this we will always have crowded cities and fine buildings unseen.

HUGH FERRISS' VISION OF AERIAL TERRACES

XVIII
TOWARD AN AMERICAN ARCHITECTURE

By Irving K. Pond, F. A. I. A.

IN this essay I am dealing with but one branch of human endeavor, Art, and of Art but one phase, Architecture. Shall I define Architecture? That would not seem to be necessary with all the examples of so-called architecture rising and already risen all about us. But because so many buildings we see are not architecture perhaps an attempt at clarification will not come amiss. A work of architecture will be the conscious and unified expression of an ideal; an ideal which is held in common by the artist and the community. That is, a work of architecture will minister to the community's deepest needs as well as to the satisfaction of the architect. A building which does not beautifully fulfill the function of use is not architecture. So, too, a building which is not intended to be beautiful in itself and to conserve and enhance the beauty of its surroundings is not architecture. A building which is not in consonance with the spirit of its age is not architecture. A building to which is applied meaningless and unrelated ornament with the idea of producing beauty is not architecture; at least it fails by just so much of achieving the architectural ideal. A building which does not reach some reasonable and appropriate form of conclusion, some charming and befit-

ting crown, is not architecture. A building which pretends to be what it is not, in structure or in function, is not architecture. A building fashioned of parts unrelated to itself or to themselves or to the best ideals of its time is not architecture. A building may be very simple in its masses and forms or very rich in well considered ornament and be architecture. If it is to house a church and looks like a Carnegie Library it is not architecture. If it is a jail and looks like an office building or an office building and looks like a jail it is not architecture. A club house which looks like a fortress is not architecture. A building to be architecture, to reflect the spiritual image of the beholder, to have that form and comeliness that men may admire if not indeed desire it, must be graceful of line, firm and strong in mass, attractive in color, rich and imaginative in detail of ornament — when ornament is used — fresh in inspirational motive, reposeful and at the same time uplifting; for the present day demands satisfying reaction to such stimulus to its mental and spiritual nature.

Now having sketched rapidly in outline, and in more or less negative coloring a portrait, an ideal, of architecture, which has ever been as valid as in the present day, for every age and period has been " the present day " to those who lived in it, let us consider what may be deemed distinctively American, distinctly expressive of that body of humanity which dwells within the geographical confines of that portion of the North American continent known as the United States; for to the psychology of that widespread group, to its activities, ideals, designs and achievements the world, by common consent, has given the name American. The fact that the mental, spiritual and material activities and achievements of this vast and vastly widespread body of

humanity has, by world consent, been characterized by the one term, American, would indicate that the world in giving the name and we in accepting it recognize that in our country there is a unified idealism, a oneness of spirit and will in the expression of our nationalism which the numerous and varied racial and sectional factors within cannot disintegrate but which may and ever do lend to it the charm of variety in unity.

It may be doubted if the world which bestowed the appellation, and we who accept it, know exactly in what Americanism consists. I am intolerant of the alien philosopher who discusses America and Americanism in terms of the Negro of the South. I am intolerant of the artist who paints the habitat and depicts the costumes and customs of the aborigines in other than the historical spirit. I am glad to have these things done as matters of study and of anthropological and ethnological record and to have them done " artistically "; but I do not admit that, though produced by Americans, they add to the sum total, or contribute to the development of American Art. No understanding historian of America ever made the mistake of calling the aborigines the " original Americans " or the " first Americans." As there was no America, there were no Americans, until America came into general consciousness as an ideal to be sought, to be gained and to be maintained. No Indian ever was an American and none was an American citizen until made so by act of an American congress. No Indian, as such, has contributed to the sum total of American culture and therefore the employment of the forms of Indian art in American art products is but the expression of a bit of chalky mentality and not a contribution to the self-expression of America. The same, as to the

art forms, of the Mayan civilization. Yucatan is being ransacked for art forms to be used in the decoration of skyscrapers in New York City and elsewhere within our borders. The snake motive and zigzag geometrical motives appropriate to certain heavy low pyramidal structures, and indicative of their use, are made to do service as decorations of tall, flimsily draped, steel-framed, commercial structures. The whole idea of such employment is devoid of common sense and artistic integrity. We may say, with confidence, that the American Architecture toward which we look will not be couched in alien terms; but through insight, through introspection, through a sympathetic response to the quickening pulse of self and society, forms will come which shall express adequately the vigorous, vibrant life and idealism of the nation.

The tendency in any primitive stage of individual or social development is toward imitation. Powers of originality in expression come into play only against a rich background of experience. The richer and more varied the individual background the richer and more interesting will be the individual expression. The richer and fuller the communal background the more potent will be the communal expression. In experience and expression each individual will contribute some factor common to all. The sum total of these common experiences and modes of expression is the common denominator, the factor which denominates the race or the community; which distinguishes it and individualizes it. The development and enrichment of this factor is not imitation but worthy progression. In the arts America up to recently has had a paucity of experience and a thinness of background which has made imitation almost a necessity if

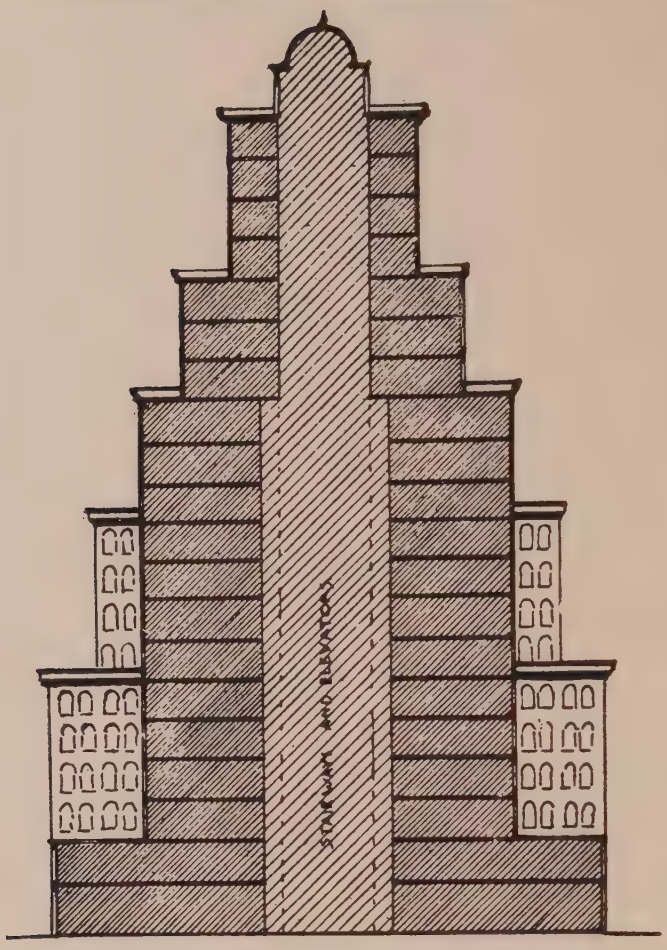
there were to be any substance whatsoever to the envisioned form. On the commercial and material side, however, we have come to realize that there has evolved a background of real substance upon which to build our dreams. It is so, too, in other matters, only we have not come into a full realization of it and so continue to imitate; especially in our religious and domestic art. We excuse or condone our imitative exercises in ecclesiastical design with the untenable theory that the Church does not change but is founded and exists an unchangeable and unalterable factor in the equation of human life. However, the Church, whatever of immutability it may ascribe to its mystic element, most certainly has changed its material forms with changing social conditions. This leaves the conventional ecclesiastic and the imitative and unthinking architect of ecclesiastical buildings forever at a loss as to what type to follow; the Roman or the Medieval or whatever; one choosing one form of expression and the other another. Both are astray in their sickly sentimentality and are not fair to religion or the times. The American Architecture toward which we look will be richer and deeper in the symbolized expression of realities and thus truer to its age. In our present zeal to imitate, most of what we do is so utterly obvious, so deadly common. By and by we shall read ourselves into our art. Let us regard ourselves sincerely but let us not take ourselves too seriously; and thus an element of joy, of surprise, of the unexpected may creep into our architecture as it already has into the expression of our humor at its best, as it has into the best of our literature. Until we put this of ourselves into our art, and especially into our architecture, we shall not reach that full expression which shall deserve to be called American.

In all peoples which have achieved a broad and unified nationalism is a basic sincerity which finds expression in a bold and simple treatment of fundamental masses and is echoed in the lesser masses and details. America today, above all other nations, is marked by that breadth of idealism and unity of thought which, shining through its governmental forms and social institutions, reflects the vastness and unity of her geographical area; an area so vast and so unified with all its lesser and varied units (one from many), as to impress itself upon its inhabitants and virtually to force them into breadth of thought and expression. If one should look for and find, as one does, in ancient Athens and in ancient Rome with their world-wide influence, though narrow geographical confines, a breadth and unity of thought and expression, how much more should one expect of America with her widespread influence and her wonderful geography, her broad boundaries and varied climate. Bigness and simplicity, — bigness of heart and idealism, simplicity of life, thought, and expression, — should characterize her in all lines of endeavor and achievement. Climate, Geography, Race, Nationalism must impress and inspire the architect in this desired, if not at once forthcoming, expression. The architect cannot stand alone by himself ignoring the workings of these four great influencing factors, stand alone and endeavor merely to express himself, and achieve an art which shall be so generally and widely expressive of fundamentals as to last and become a permanent influence; as permanent, at least, and as lasting in effect as the social organism of which he is a part. If he is apart from, rather than a part of, the social order neither the artist nor his works will persist. Pure emotionalism evaporates in the play of the emotions. The play of the

emotions around fundamentals makes them to vibrate and glow in the light of a living art.

Now the artist, especially the architect, not only should reflect the tendencies and right movements of the age — he should direct them. He should even inaugurate them. He sometimes does; but his work is ineffectual until the society which he is trying to interpret to itself rises to a plane of right consciousness and recognizes itself and its desires in the ideal which the artist is seeking to advance.

It is interesting to the student to trace back the decorative and the structural forms of the time to their source; or to follow the stream toward the source which ofttimes is obscured by the mist of the far distant past. The set-back demanded by the New York zoning law was not a new feature. It was applied for a new purpose. Yet that same purpose had been in the minds of forward looking architects and forms had been sketched to meet it. Long years before the New York zoning law was called into existence and before any set-back as such had appeared in New York or any other section of the country, Louis Sullivan, a Chicago architect, had made practicable application of the offset tower to commercial structures (see the still existing Schiller Building) and I myself in 1898 had published in an Eastern architectural journal a diagrammatic plan and a section of a many-storied set-back building designed to give its occupants terraces for light, air and exercise, and to conserve light and air to the neighboring structures. To be perfectly frank, Sullivan and I were preceded by others quite some few years back — as witness the hanging gardens of Babylon — not perhaps quite the same in motive and construction, but suggestive.



SECTION OF SET-BACK BUILDING BY I. K. POND
From "The Brickbuilder" of 1898

In those earlier times in America when art was an individual expression, or the expression of an individual taste, on the part of an artist whose ear lay only against his own heart, as one might say, and who had not as yet taken himself seriously as one interpreting the heartbeats of his fellow creatures, it was fairly easy to prognosticate as to the general direction of a tendency; but today, when transitions are abrupt, when the mind of society is expanding not smoothly but by jerks and the artist is keeping tab on the process; when every man

is his brother's keeper and knocks him down or boosts him up as best suits a selfish purpose; when science is an open book read and intimately comprehended by everyone and psychology and philosophy are comfortably domiciled in the bosom of the masses, just what form will be assumed by architecture, that architecture which is an interpretation of the social movement, it is hard to say. But I know that the last word has not been spoken; indeed we are but shaping the letters with which to spell that last word, which, because of the ever changing pattern of life and society, will never have fixed and final form. Our skyscrapers interpret fairly a certain phase, our church edifices misinterpret another; our hotels and club houses are far from convincing; our hospitals are showing signs that they realize what they might be. When at length we do find our hearts and aspirations and desires clearly echoed in our environing buildings, when we do see in them our spiritual visage fairly reflected, we shall know that something has developed in us which the architect can interpret and express. If we are true Americans in our living thoughts and acts, then our architecture will glow with American idealism; the subconscious spirit of America will guide the consciously directed hand of the artist. Which is the best I can ask for architecture.

BIOGRAPHICAL NOTES

BIOGRAPHICAL NOTES

On Writers Whose Essays Appear in the Pages of This Volume

HUBERT BURNHAM. Born in Chicago, 1882. Son of Daniel Hudson Burnham, architect and city planner. Member of architectural firm of D. H. Burnham & Company since 1910; now Burnham Brothers. Educated in public schools, Chicago Manual Training School, United States Naval Academy (Annapolis), Ecole des Beaux Arts (Paris). Lieutenant in the Navy in the World War, 1917–1918. Member of the Architectural Commission of "A Century of Progress" 1933 Chicago Centennial Celebration. Among the buildings he designed and erected in Chicago are the Bankers' Building; Carbide & Carbon; Burnham; Medical & Dental Arts; Carson, Pirie, Scott & Co. Men's Store; Central Life; Dunham; Madison and Clark; Engineers; and the A. W. Shaw Building. Member, American Institute of Architects.

BARRY BYRNE. Born in Chicago, 1883. Educated in Chicago schools and atelier of Frank Lloyd Wright. Began the practice of architecture in 1909 in partnership with Andrew Willatzen in Seattle, Washington. Formed an association with Walter Burley Griffin in Chicago, 1914–1917. During this period the bulk of his work consisted of city, institutional and sub-division planning, as well as the development of housing projects; the plans for Rock Crest Park and housing development of Mason City, Iowa, and group plans for the University of New Mexico were developed. Since 1919 Barry Byrne Company has planned and carried out: The Immaculata; the Church of St. Thomas the Apostle; St. Mary's High School; Clarke College, Dubuque; St. Patrick's Church and St. Catherine's High School, Racine, Wisconsin; Church of the Christ King, Tulsa, Oklahoma; Christ King Church, Cork, Ireland.

EDWIN H. CLARK. Architect in practice in Chicago since 1906 when his firm was Otis & Clark. Clark and Walcott 1920–1925; since then practiced independently. Born in Chicago, 1878. Educated in Phillips Academy, Yale

University, England, France and Germany. U. S. Naval Reserve Lieutenant, 1917; Corps of Civil Engineers in charge of contract construction at Great Lakes Naval Training Station. His works include Chicago Zoölogical Park; Lincoln Park Administration Building, Primate House and Aquarium; Winnetka Village Hall; Hinsdale Memorial Building. Member, American Institute of Architects.

JACOB L. CRANE, Jr. Town planner and landscape architect in practice in Chicago since 1922. Born in Michigan, 1892. Educated at University of Michigan, Harvard Graduate School of Landscape Architecture, and in Europe. Member, American Society of Landscape Architects; American City Planning Institute; American Society of Civil Engineers.

ERNEST A. GRUNSFELD, Jr. Architect in practice in Chicago since 1924. Born in Albuquerque, New Mexico, 1897. Educated in New York schools, Massachusetts Institute of Technology, Ecole des Beaux Arts, American Academy at Rome. Winner of Roche prize, gold medal Société des Architect Diplôme du Gouvernement, and medal American Institute of Architects. Co-architect of first prize house by National Common Brick Association; Co-architect of Michigan Boulevard Garden Apartments; Architect of the Adler Planetarium. Member, American Institute of Architects.

JOHN LEONARD HAMILTON. Architect in practice in Chicago since 1905 as Perkins and Hamilton; Perkins, Fellows and Hamilton, 1911; Hamilton, Fellows & Nedved since 1926. Born in Bloomington, Illinois, 1878. Son of John Marshall Hamilton, governor of Illinois 1882–1884. In Spanish-American War with the First Illinois Infantry in the Santiago campaign. Office experience with D. H. Burnham & Co., Architects, and Chicago Board of Education. Architect of the Lion House in Lincoln Park, which was awarded the gold medal of the Illinois Chapter, A. I. A., the Refectory and several recreational buildings; Evanston Township High School; The Skokie School, Winnetka, Illinois; public schools of Richmond, Indiana. Member, American Institute of Architects.

JOHN A. HOLABIRD. Member of the firm of Holabird & Root, Architects, Chicago. Born in Evanston, Illinois, 1886. Educated at Hill School, Pottstown, Pennsylvania; United States Military Academy, West Point, New York; Academy des Beaux Arts, Paris. 2nd Lieutenant, Corps of Engineers, 1907–1909; Captain of Illinois National Guard, 1914–1917; Major and Lieutenant Colonel, 122nd Field Artillery, 33rd Division; Lieutenant Colonel commanding 12th Field Artillery, 2nd Division, August, 1918 to December, 1918. Received D. S. M. for services in the World War. Among recent buildings by Holabird & Root are Chicago Daily News; Chicago Board of Trade; 333 North Michigan Ave., Chicago; Chicago Woman's Club; Rand Tower, Minneapolis. Member, American Institute of Architects; Trustee, Art Institute of Chicago.

HENRY K. HOLSMAN. Architect in practice in Chicago since 1893. Brainerd & Holsman, 1893–1897; since 1897 practiced without partners. Born in Dale, Iowa, 1866. Graduated Iowa College, now Grinnell, in 1891. Consulting Engineer, Independent Harvester Co., 1910–1912; Park Commissioner of Park Ridge, Illinois, 1908–1909. Architect of the Disciples Divinity House of the University of Chicago, churches, college buildings, banks, and apartment buildings. President of Chicago Architectural Club, 1903. Member of Illinois Society of Architects, Western Society of Engineers, Director of Association of Arts & Industries. Fellow, American Institute of Architects.

HENRY J. B. HOSKINS. Born, Birmingham, England, 1879; educated at King Edward the Sixth Grammar School of that city. Articled to the firm of Cossins, Peacock and Bewlay, Architects, of Birmingham. After four years with the Public Works Department of the Union of South Africa, he came to Chicago where he has spent many years in the service of Holabird & Root, Architects. Associate, Royal Institute of British Architects.

EUGENE HENRY KLABER. Architect in practice in New York, 1914–1924; Chicago since 1924. Born in New York City, 1883. Educated at Pratt Institute, Brooklyn; Columbia University, École des Beaux Arts, Paris;

Pupil of Jean-Louis Pascal; Diplôme du Gouvernement. Winner of second prize, Housing competition of the Reconstruction Commission of the State of New York. Architect of industrial and residential work in New York; Jewish People's Institute, Chicago; Whitehall Apartment Hotel, Chicago; Rosenwald Housing Project, Chicago; Residential work, Chicago, Detroit, and Savannah. Member, American Institute of Architects.

IRVING K. POND, C. E., hon. A. M., P. P., and Fellow, American Institute of Architects. Born in Ann Arbor, Michigan, 1857. Established practice in 1886 with his younger brother, Allen B. Pond, which continued until A. B. Pond's death in 1929. On the board of the A. I. A., as vice-president, as president, and as a committee chairman formulated reports which were published independently by the Institute. Architect of the Union and League buildings for the University of Michigan at Ann Arbor, the Unions at Purdue and Kansas, and the M. S. C., Lansing. The Michigan Union has served widely as a model for its kind, being recognized in Paris as the finest of the type. Charter member and now honorary member of the Chicago Architectural Sketch Club and honorary member of the San Francisco, Los Angeles and South Bend Architectural Clubs; honorary member of the Institute of German Architects (Bund Deutscher Architekten), and a corresponding member of the Central Association of Austrian Architects; member of the National Institute of Arts and Letters. Author: " The Meaning of Architecture." Irving K. Pond has always been interested in the rhythmic physical upbuilding of the body.

GEORGE L. RAPP. Born in Carbondale, Illinois; father and brothers architects. Educated at the University of Illinois; traveled extensively through Europe. Concentrated his efforts along theater plan and design, especially in combining the theater with other large buildings. Assistant to Architect Edmund Krause in planning the Majestic Theater, Chicago. Formed partnership with his brother, the late C. W. Rapp, in architectural practice which achieved international reputation in their specialty. Offices of C. W. & Geo. L. Rapp are in Chicago and New York.

CARL B. RODEN. Librarian of the Chicago Public Library since March 10, 1918. Born, Kansas City, Missouri, 1871. Educated in Chicago public schools, Chicago College of Law; hon. M. A., Northwestern University, 1927. Entered service of the Chicago Public Library as page, 1886; assistant librarian, 1909; librarian, 1918. President of the American Library Association, 1926–1927; of the Illinois Library Association, 1904–1905; of the Chicago Literary Club, 1925–1926. Experience in library architecture derived from the planning of seven branch libraries in Chicago since 1919 as the beginning of a building program under which every ward of the city (50) will eventually be provided with a branch library.

RICHARD ERNST SCHMIDT. Architect in practice in Chicago since 1895; from 1895–1905 practiced alone; 1905 as Richard E. Schmidt, Garden & Martin, Architects, until recent years when the firm changed to Schmidt, Garden & Erikson. Born in Ebern, Bavaria, 1865. Educated in Chicago public schools, Massachusetts Institute of Technology, and through practical training in the offices of Chicago architects. Mr. Schmidt's father and brothers being prominent physicians and surgeons, accounts for his intense interest in the care of the sick, resulting in his planning more than one hundred hospitals built in the United States and foreign countries. Co-author with John A. Hornsby of "The Inspiration, Architecture, Equipment and Operation of the Modern Hospital." Author of the section on "Children's Hospitals" in Abt's "System of Pediatrics." Fellow, American Institute of Architects.

ALFRED SHAW. Architect in practice in Chicago since 1921 with Graham, Anderson, Probst & White. Born in Dorchester, Massachusetts, 1895. Graduated from prep school; an office boy in 1911; with Boston architects until traveling abroad summer of 1914; back in Boston until April, 1917. Drove an ambulance with the 26th Division, French Infantry. Commissioned 2nd Lieutenant, Air Service, 1917. Attached to Staff Chief of Air Service until January, 1919. Representative of Herbert Hoover and Allied Economic Council for Dalmatia until August, 1919. Almost became a diplomat, but remarried architecture. Practiced independently in Boston and New York until 1921.

THOMAS E. TALLMADGE. Architect in practice in Chicago as Tallmadge and Watson since 1905. Born in Washington, D. C., 1876. Educated at Massachusetts Institute of Technology; winner of Chicago Architectural Club Traveling Scholarship. Professor of Architectural History, Armour Institute of Technology. Architect of First Methodist, First Baptist, and First Congregational Churches of Evanston; the completion of St. Luke's, Evanston; First Presbyterian Church, Chicago; residential and commercial work. President, Summer School of Painting at Saugatuck, Michigan; Vice-President, Chicago Society of Etchers; President, Art Commission of the City of Evanston; Chairman, Board of Art Advisers of the State of Illinois; member, Architectural Commission for the restoration of the city of Williamsburg, Virginia. Fellow, American Institute of Architects. Author: "The Story of Architecture in America."

ARTHUR WOLTERSDORF. Architect in practice in Chicago since 1894. Born in Chicago, 1870. Educated in Chicago public schools, Massachusetts Institute of Technology, and architects' offices. Practiced, Hill & Woltersdorf, 1894–1914; Arthur Woltersdorf, 1914–1919; Woltersdorf & Bernhard, 1919–1923; Arthur Woltersdorf since 1923. His is a general practice. His works include St. Paul's German Evangelical Lutheran Church, Chicago; warehouses and branch offices in Saskatoon, Canada; Kansas City, Missouri; and Wichita, Kansas for the Rumely Company; Chicago buildings for Devoe & Raynolds Co.; Hippach Memorial Chapel, Dupage County, Illinois. Writer in the architectural press. Past President, Chicago Chapter, A. I. A.; Past President, Illinois Society of Architects; Fellow, American Institute of Architects.

RALPH W. ZIMMERMAN. Architect in practice in Chicago since 1919; partner in the firm of Zimmerman, Saxe & Zimmerman. Educated in Chicago public schools, University of Illinois, and architects' offices. Studied penal institutions in America and Europe. Co-architect of Illinois Penitentiary at Stateville; Eastern State Penitentiary at Graterford, Pennsylvania. Member, American Institute of Architects.

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